December 2020
[DRAFT]

Noise Study Report

SR 826/Palmetto Expressway
From South of NW 36th Street (MP 8.355) to North of NW 154th Street (MP 17.950)
Project Development & Environment Study
Miami-Dade County, Florida

Financial Management Numbers: 447165-1-22-01, 441830-1-22-01, 441831-1-22-01
Federal Aid Project Number: N/A
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Prepared For:
Florida Department of Transportation, District VI

December 2020

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016, and executed by FHWA and FDOT.

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EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) District Six is conducting a Project Development and Environment (PD&E) Study, in accordance with the National Environmental Policy Act (NEPA). This roadway project involves the potential addition of general use lanes, conversion of express (managed) lanes to general use lanes, as well as traffic operational and geometrical design improvements on SR 826/Palmetto Expressway from south of NW 36th Street [Milepost (MP) 8.355] to north of NW 154th Street (MP 17.950) within Miami-Dade County.

A traffic noise analysis was conducted in accordance with Title 23 Code of Federal Regulations Part 772 (23CFR772), Procedures for Abatement of Highway Traffic Noise and Construction Noise (July 13, 2010) and Part 2, Chapter 18 (Highway Traffic Noise) of the FDOT PD&E Manual (dated July 1, 2020). Traffic noise levels were predicted for noise sensitive locations along the project corridor for the existing conditions and the design year (2045) No-Build and recommended Build Alternative. Build Alternative traffic noise levels are predicted to range from approximately 37.2 to 79.0 dB(A) during the project's design year. Worst-case design year traffic noise levels with the Build Alternative are predicted to be no more than 1.9 dB(A) greater than existing traffic noise levels.

Design year traffic noise levels with the planned improvements are predicted to approach or exceed the Federal Highway Administration (FHWA) Noise Abatement Criteria (NAC) for residential use [67 dB(A)] at 416 residences and five (5) special use/non-residential sites. Therefore, noise sensitive sites are impacted by the planned improvements. In accordance with traffic noise study requirements set forth by both the FHWA and FDOT, noise barriers were considered for all noise sensitive sites where design year Build Alternative traffic noise levels were predicted to approach, equal or exceed the NAC.

Noise barriers were evaluated at nine (9) locations to mitigate these predicted noise impacts. However, due to unreasonable cost and/or poor abatement performance, none of the noise barriers that were evaluated were found reasonable or feasible and none are recommended for design or construction. Based on the noise analyses performed to date, there are no apparent solutions available to mitigate the noise impacts at any of 416 impacted residences and five (5) impacted special land use sites. The traffic noise impacts to these noise sensitive sites are considered to be an unavoidable consequence of the project.

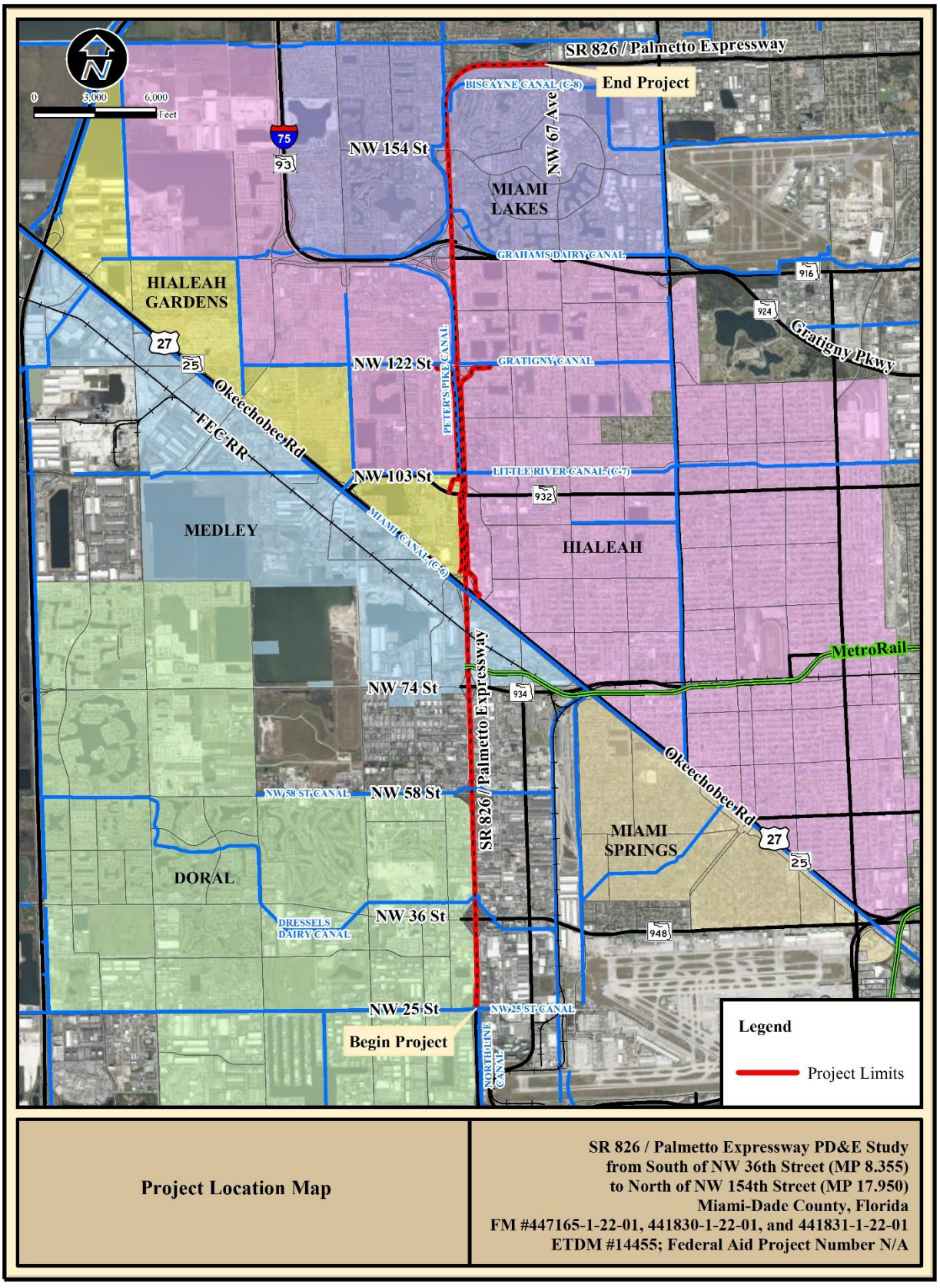
1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) District Six is conducting a Project Development and Environment (PD&E) Study, in accordance with the National Environmental Policy Act (NEPA). This roadway project involves the potential addition of general use lanes, conversion of express (managed) lanes to general use lanes, as well as traffic operational and geometrical design improvements on SR 826/Palmetto Expressway (herein referred to as SR 826) from south of NW 36th Street (Milepost (MP) 8.355) to north of NW 154th Street (MP 17.950) within Miami-Dade County. The improvements are proposed to address existing congestion and higher than expected speed differentials between the general purpose (GP) lanes and the express lanes (EL) along the project corridor, as well as provide additional access to the EL system. The project also includes potential improvements to the frontage road system parallel to and on both sides of SR 826 from US 27/SR 25/Okeechobee Road (herein referred to as US 27) to NW 122nd Street.

Connecting population and commercial centers in north-central Miami-Dade County, the project traverses the municipalities of Doral, Medley, Hialeah Gardens, Hialeah, and Miami Lakes, as well as unincorporated portions of the county. SR 826 connects to essential east-west facilities within north-central Miami-Dade County, including SR 836/Dolphin Expressway, SR 948/NW 36th Street, SR 934/NW 74th Street (herein referred to as NW 74th Street), US 27, SR 932/NW 103rd Street (herein referred to as NW 103rd Street), I-75/SR 93, and SR 924/Gratigny Expressway.

Within the project limits, SR 826 is a principal arterial and consists of six (6) to nine (9) general use lanes and zero (0) to three (3) express (managed) lanes; the typical section varies throughout the project length. In addition, SR 826 is part of the state's emergency evacuation network and is on the National Highway System (NHS), the Strategic Intermodal System (SIS), and the State Highway System (SHS).

The project location map is shown in **Figure 1-1**.



Project Location Map	SR 826 / Palmetto Expressway PD&E Study from South of NW 36th Street (MP 8.355) to North of NW 154th Street (MP 17.950) Miami-Dade County, Florida FM #447165-1-22-01, 441830-1-22-01, and 441831-1-22-01 ETDM #14455; Federal Aid Project Number N/A

Figure 1 - 1: Project Location Map

1.1 Purpose and Need

The purpose of this project is to address various roadway deficiencies causing congestion and large speed differentials between GP lanes and EL along the SR 826 corridor. Proposed improvements are anticipated to increase roadway safety, facilitate the movement of people and goods, and increase the capacity in the GP lanes. Another goal of the project is to improve access to the EL system by relocating an ingress point in northern Miami-Dade County. Additionally, the purpose of the project is to improve the geometry of the expressway frontage road system. The need for the project is based on the following criteria:

1.1.1 Roadway Deficiencies: Address Congestion and Speed Differentials

Following the opening of the SR 826 ELs to traffic in September 2019, additional congestion and higher than expected speed differentials between EL (higher speeds) and GP lanes (lower speeds) were observed in both the northbound and southbound directions during peak travel times. Areas identified for improvement include the NW 103rd Street interchange and from NW 74th Street to US 27 in the southbound direction. The issues identified in these areas are caused by geometric and operational deficiencies such as the lack of auxiliary lanes, insufficient ramp lengths, and substandard shoulders.

The implementation of operational improvements to correct the identified roadway deficiencies on SR 826 would improve congestion and better align speeds between the EL and GP lanes. According to the Palmetto Express Lanes Modification Summary Report (March 2020), an earlier planning study, the proposed improvements would result in a 56% and 42% reduction in travel times for the southbound and northbound GP lanes, respectively. In addition, throughput would increase a combined 58% and 11% in the southbound and northbound directions, respectively. While speed in the EL is not projected to increase, speeds in the GP lanes are forecasted to rise by 26 miles per hour in the southbound direction and 19 miles per hour in the northbound direction. These metrics illustrate how implementation of the potential improvements would address congestion and speed differentials currently caused by roadway deficiencies.

1.1.2 Sytem Linkage: Provide Better Access to the EL System

Currently the southbound EL lanes begin north of NW 154th Street and do not provide southbound ingress for motorists in this area of north-central Miami-Dade County (after NW 67th Avenue). To better facilitate the movement of traffic from this area of increased demand into the EL system, the potential project improvements include relocating the existing EL ingress point from north of NW 154th Street to south of NW 103rd Street. This will create access to the EL system for residents in this portion of Miami-Dade County and create an important linkage to the EL system.

2.0 PROJECT DESCRIPTION

The project study area consists of the existing and proposed right-of-way limits for the viable Build Alternative and the No-Build Alternative.

2.1 Existing Roadway Conditions

Data gathering focused on the areas of roadway mainline, bridge, frontage road, and environmental characteristics. Assessment of the existing conditions began with the collection and review of data pertaining to the existing facilities which included conducting on-site field inventories, review of existing documents, as well as, review of other pertinent data used for the evaluation of these transportation facilities.

2.1.1 Functional Classification

Within the project limits, SR 826 is functionally classified as an Urban Freeway/Expressway and is part of the NHS, the SIS, and the SHS. It consists of six (6) to nine (9) GP lanes and zero (0) to three (3) ELs.

Connecting population and commercial centers in north-central Miami-Dade County, the project traverses the municipalities of Doral, Medley, Hialeah Gardens, Hialeah, and Miami Lakes, as well as unincorporated portions of the county. SR 826 connects to essential east-west facilities within north-central Miami-Dade County, including SR 836/Dolphin Expressway, SR 948/NW 36th Street, NW 74th Street, US 27, NW 103rd Street, I-75/SR 93, and SR 924/Gratigny Parkway.

In addition, SR 826 is part of the state's emergency evacuation network. As a designated SIS highway corridor, it provides access via NW 74th Street (also known as Hialeah Expressway) and surface streets to the Miami Hialeah Florida East Coast (FEC) Railway Intermodal Terminal, a SIS Freight Rail Terminal.

The frontage road system within the project limits is functionally classified as an Urban Local facility. The SR 826 frontage road systems have a Context Classification of C-3C (Suburban Commercial); however, there are some adjacent residential properties.

2.1.2 Access Management

The SR 826 (section 87260000) is designated Access Class 1. The SR 826 frontage roads (sections 87260151, 87260152, 87260298, 87260506, and 87260521) do not have a designated Access Classification.

2.1.3 Typical Sections

2.1.3.1 SR 826 Typical Sections

Under existing conditions, SR 826 varies from six (6) to nine (9) GP lanes and includes up to three (3) ELs throughout the project corridor. The design and posted speeds for this barrier separated

expressway system are 60 mph and 55 mph, respectively. **Table 2-1** depicts the existing typical section characteristics for the project corridor.

Table 2 - 1: Existing SR 826 Typical Section Characteristics

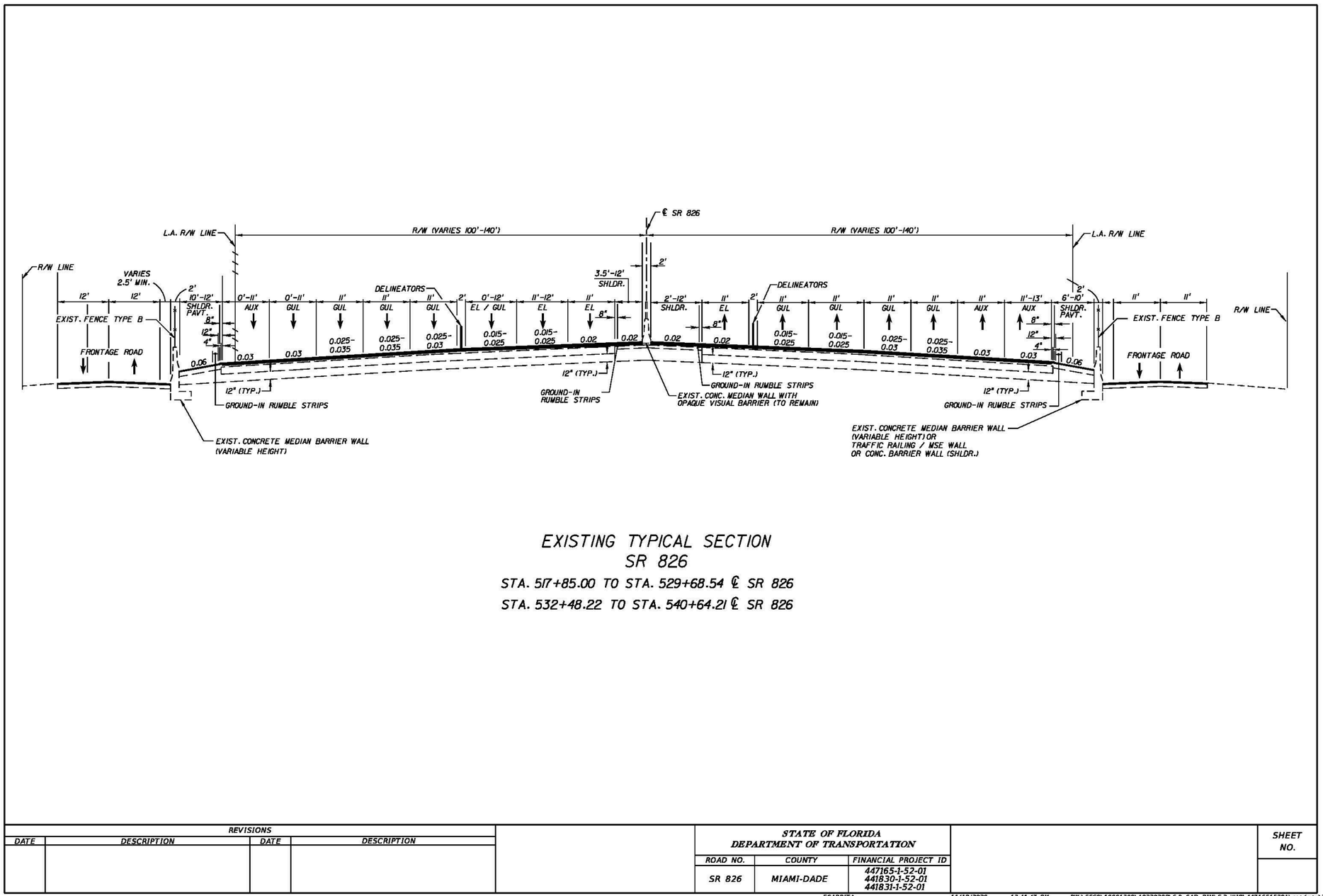
Typical Section Element	SR 826 NB	SR 826 SB
Number of Travel Lanes	5	6
Travel Lane Width	11 ft	11 ft
Inside Shoulders Width	Varies 10-12 ft	Varies 3.5-12 ft
Outside Shoulders Width (Bike Lane)	Varies 10-12 ft	Varies 10-12 ft
Median Width	n/a	n/a
Right-of-Way Width	200 ft–270 ft	

In the northbound direction there is one (1) EL from south of US 27 to NW 103rd Street. The separate, single lane, I-75 northbound EL system begins north of NW 103rd Street on the inside of northbound SR 826. In the northbound direction on SR 826, there are five (5) GP lanes from the begin project to US 27; four (4) GP lanes from US 27 to north of the I-75 interchange; and three (3) GP lanes from north of the I-75 interchange to the end project.

In the southbound direction, there is one (1) EL and three (3) GP lanes from the end project (north of NW 154th Street) to the I-75 interchange. Immediately south of the interchange, the I-75 single EL turns into a second EL on SR 826 southbound, both of which extend all the way through the project limits. Also in the southbound direction, there are four (4) GP lanes from south of the I-75 interchange to north of the NW 103rd Street interchange; three (3) GP lanes within the NW 103rd Street interchange area; and four (4) GP lanes south of NW 103rd Street interchange to the begin project (south of NW 36th Street).

See **Figure 2-1** for the existing SR 826 typical section in the vicinity of NW 103rd Street.

Figure 2 - 1: Existing SR 826 Typical Section



EXISTING TYPICAL SECTION
SR 826

STA. 517+85.00 TO STA. 529+68.54 ℄ SR 826

STA. 532+48.22 TO STA. 540+64.21 ℄ SR 826

REVISIONS					STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION				SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 826	MIAMI-DADE	447165-1-52-01 441830-1-52-01 441831-1-52-01		

ECABRITA 11/18/2020 12:41:47 PM PW:\S560\10001209\10220208\6.0_CAD_BIM\6.2_WIP\447165152O1\roadway\TYPSRD101.D

2.1.3.2 Frontage Road Typical Sections

Under existing conditions, there is a frontage road system on both sides of SR 826. The frontage road system generally consists of a two-lane undivided typical section with flush shoulders and some segments with one-way undivided or two-way divided typical sections with curb and gutter. The Design Speed varies from 30 mph to 40 mph. The Posted Speed varies from 20 mph to 35 mph.

Within the project limits there are two (2) frontage road systems:

- FPID 441830-1-52-01 – from US 27 to NW 103rd Street within the cities of Hialeah and Hialeah Gardens:
  - Section 87260151 (MP 0.000-0.720), W 20th Avenue from US 27 to W 44th Place.
  - Section 87260152 (MP 0.011-0.715), NW 77th Avenue from south of NW 95th Street to NW 103rd Street.

- FPID 441831-1-52-01 – from NW 103rd Street to NW 122nd Street within the City of Hialeah:
  - Section 87260298 (MP 0.000-1.391), W 20th Avenue East from NW 103rd Street/W 49th Street to NW 122nd Street/W 68th Street, including W 67th Place from west of W 18th Avenue to W 17th Court.
  - Section 87260506 (MP 0.000-0.173), NW 77th Court from NW 103rd Street to south of Little River Canal (C-7).
  - Section 87260521 (MP 0.173-1.342), NW 77th Avenue from south of Little River Canal (C-7) to Little River Canal (C-7), W 20th Avenue West from Little River Canal (C-7) to NW 122nd Street/W 68th Street, including W 67th Place from west of W 21st Court.

Table 2-2 depicts the existing typical section characteristics for the frontage road systems within the project corridor.

Table 2 - 2: Existing Frontage Road Typical Section Characteristics

Typical Section Element	From US 27 to NW 103rd Street (FPID 441830-1-52-01)	From NW 103rd Street to NW 122nd Street (FPID 441831-1-52-01)
Number of Travel Lanes	2	2
Travel Lane Width	Varies 11-12 ft	Varies 11-12 ft
Curb and Gutter	Type F (certain locations)	Type F (certain locations)
Shoulders Width	Varies 0-5 ft paved, 2-6 ft total	Varies 0-5 ft paved, 2-6 ft total
Median Width	n/a	n/a
Sidewalk Width	Varies 5-6 ft on East Frontage Road/W 20th Avenue only	Varies 5-6 ft
Right-of-Way Width	50 ft	46.4 ft-108.9 ft

The following sections (2.1.3.2.1 and 2.1.3.2.2) detail the existing conditions for these two frontage roads where improvements are proposed as part of the viable Build Alternative.

2.1.3.2.1 Frontage Roads from US 27 to NW 103rd Street (FM 441830-1)

Six existing roadway typical sections are identified within the limits of the frontage road system from US 27 to NW 103rd Street. See **Figure 2-2** and **Figure 2-3** for the frontage road typical sections.

Existing Roadway Typical Section 1 (Section 87260151), SR 826 East Frontage Road/W 20th Avenue from US 27 to south of W 39th Street, consists of a two-lane undivided section, with flush unpaved shoulders, and a sidewalk along the right side of the roadway for most of the limits.

Existing Roadway Typical Section 2 (Section 87260151), SR 826 East Frontage Road/W 20th Avenue from south of W 39th Street to W 41st Street, consists of a two-lane undivided section, with flush paved shoulders and a concrete barrier wall on the left side of the roadway adjacent to SR 826 northbound, flush unpaved shoulder and a sidewalk along the right side of the roadway.

Existing Roadway Typical Section 3 (Section 87260151), SR 826 East Frontage Road/W 20th Avenue from W 41st Street to W 44th Place, consists of a two-lane undivided section, with flush unpaved shoulders and landscaping on both sides, and a sidewalk along the right side of the roadway. The east frontage road system ends prior to NW 103rd Street.

Existing Roadway Typical Section 4 (Section 87260152), SR 826 West Frontage Road/NW 77th Avenue from the begin project to south of the Walmart Driveway, and from north of NW 95th Street to NW 98th Street, consists of a two-lane undivided section, with flush unpaved shoulders along both sides of the roadway and a concrete barrier wall on the right side of the roadway adjacent to SR 826 southbound.

Existing Roadway Typical Section 5 (Section 87260152), SR 826 West Frontage Road/NW 77th Avenue from south of the Walmart Driveway to north of NW 95th Street, consists of a two-lane undivided section, with flush paved shoulder and a concrete barrier wall on the right side of the roadway adjacent to SR 826 southbound, and flush unpaved shoulder along the left side of the roadway.

Existing Roadway Typical Section 6 (Section 87260152), SR 826 West Frontage Road/NW 77th Avenue from NW 98th Street to NW 103rd Street, consists of a two-lane undivided one-way section with traffic in the southbound direction, with an existing drop curb and trench drain on the left side of the roadway, and a flush paved shoulder along the right side of the roadway, next to the Limited Access right-of-way of SR 826.

Figure 2 - 2: Existing Frontage Road (Undivided)
Typical Section 1 (East Frontage Road/W 20th Avenue)

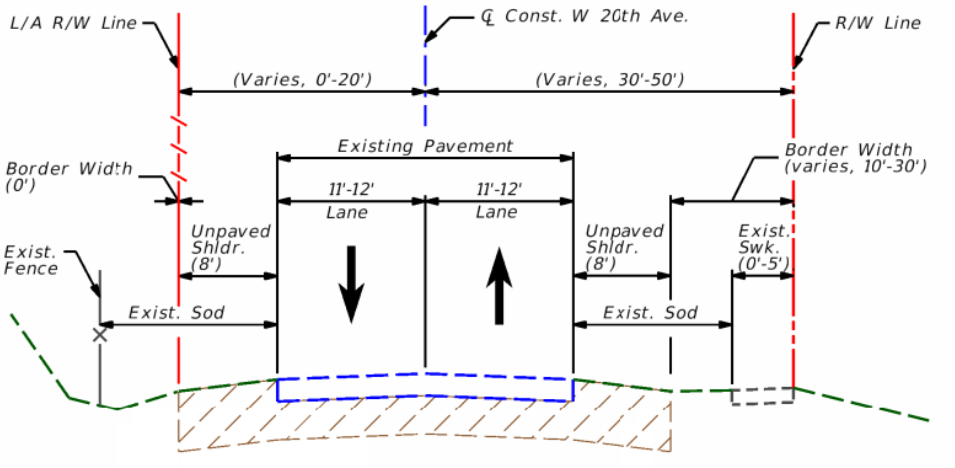
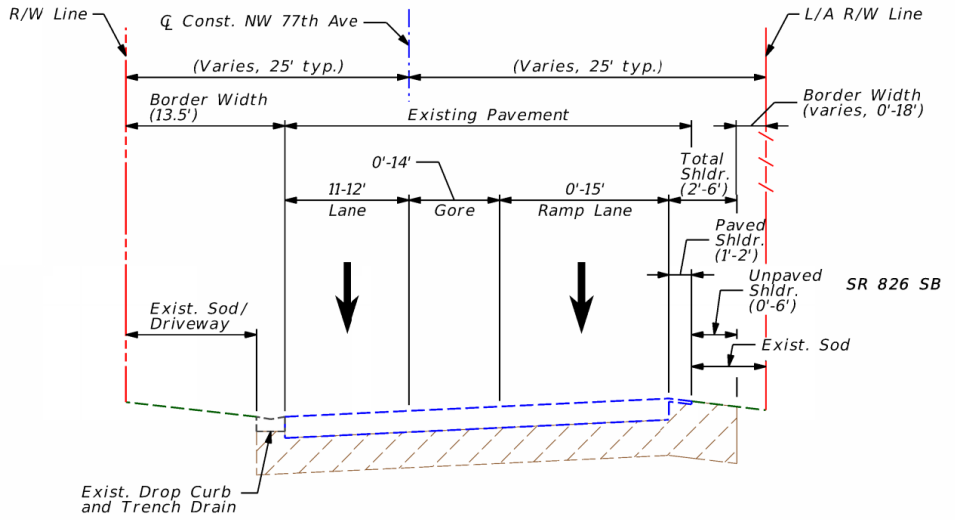


Figure 2 - 3: Existing Frontage Road (One-Way)
Typical Section 6 (West Frontage Road/NW 77th Avenue)



2.1.3.2.2 Frontage Roads from NW 103rd Street to NW 122nd Street (FM 441831-1)

Seven (7) existing roadway typical sections and two (2) existing bridge typical sections are identified within the limits of the frontage road system from NW 103rd Street to NW 122nd Street. See **Figure 2-4** for the frontage road typical section (applies to both sides of SR 826).

Existing Roadway Typical Section 7 (Section 87260298), SR 826 East Frontage Road/W 20th Avenue East from NW 103rd Street to south of the Little River Canal (C-7), consists of a two-lane undivided one-way section with traffic in the northbound direction; with a flush shoulder on the left side; and curb and gutter, grass strip, and sidewalk along the right side.

Existing Roadway Typical Section 8 (Section 87260298), SR 826 East Frontage Road/W 20th Avenue East from south of the Little River Canal (C-7) to south of W 60th Street and from north

of W 60th Street to north of W 64th Street, consists of a two-lane undivided section, with flush unpaved shoulders on both sides, and a sidewalk along the right side for most of the limits.

Existing Bridge Typical Section 1 (Bridge 870570), SR 826 East Frontage Road/W 20th Avenue East over the Little River Canal (C-7), consists of a two-lane undivided section with flush shoulders and post and beam railings on both sides; the right shoulder connects to sidewalks on the bridge approaches.

Existing Roadway Typical Section 9 (Section 87260298), SR 826 East Frontage Road/W 20th Avenue East from south of W 60th Street to north of W 60th Street, consists of a two-lane undivided section with a left-turn lane, with curb and gutter on both sides, and a sidewalk along the right side.

Existing Roadway Typical Section 10 (Section 87260298), SR 826 East Frontage Road/W 67th Place from north of W 64th Street to NW 122nd Street/W 68th Street, consists of a two-lane divided section with auxiliary lanes in both directions, a raised median, curb and gutter along both sides, and a sidewalk along the right side.

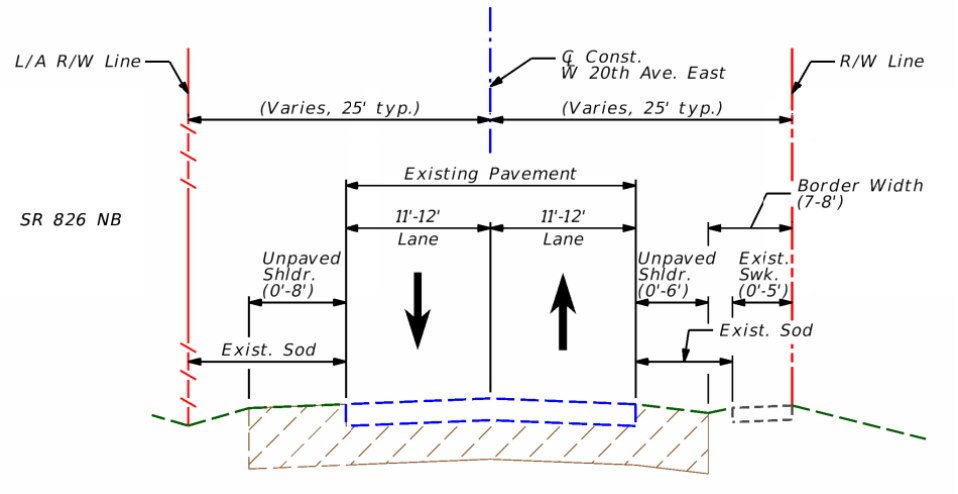
Existing Roadway Typical Section 11 (Section 87260506), SR 826 West Frontage Road/NW 77th Court from north of NW 103rd Street to south of the Little River Canal (C-7), consists of a two-lane undivided section, curb and gutter along both sides, and a sidewalk along the left side.

Existing Roadway Typical Section 12 (Section 87260521), SR 826 West Frontage Road/W 20th Avenue West from south of the Little River Canal (C-7) to south of W 60th Street and from north of W 60th Street to NW 122nd Street/W 68th Street, consists of a two-lane undivided section, with flush unpaved shoulders along both sides, guardrail along the right side at the Peter's Pike Canal, and a sidewalk along the left side for most of the limits.

Existing Bridge Typical Section 2 (Bridge 870569), SR 826 West Frontage Road/W 20th Avenue West over the Little River Canal (C-7), consists of a two-lane undivided section with wide curb and post and beam railings on both sides.

Existing Roadway Typical Section 13 (Section 87260152), SR 826 West Frontage Road/W 20th Avenue West from south of W 60th Street to north of W 60th Street, consists of a two-lane undivided section with a left-turn lane, with curb and gutter and sidewalk along the left side, and paved shoulder and shoulder barrier along the right side at the Peter's Pike Canal.

Figure 2 - 4: Existing Frontage Road (Undivided)
Typical Section 8 (East Frontage Road/W 20th Avenue East)



2.1.4 Right-of-Way

Existing right-of-way along the SR 826 corridor ranges from approximately 235 feet to 455 feet or more in width near the existing interchanges. The existing right-of-way along the frontage road systems is typically 50 feet. with a minimum of 46.4 feet on the East Frontage Road/W 20th Avenue at W 64th Street and maximum of 108.9 feet on the West Frontage Road/NW 77th Avenue at NW 122nd Street.

2.1.5 Pavement Type and Operational Conditions

FDOT performs the annual Pavement Condition Survey (PCS) of the entire SHS to support of the FDOT's Resurfacing Program. The PCS ratings for Crack, Ride, and Rut assess the condition and performance of the pavement as well as to predict future rehabilitation needs. The existing pavement in this segment of SR 826 is in good condition, because the pavement was resurfaced in 2019 by project FPID 432687-1-52-01. The PCS 2020 ratings for the SR 826 mainline (section 8726000 MP 8.355-17.950) are Crack Rating 10, Ride Rating 8.2-8.5, and Rut Rating 10.

The frontage road segments are not included in the annual PCS ratings conducted by the State Materials Office. In 2017, District 6 conducted a pavement evaluation along the frontage road segments, indicting the existing pavement along the frontage roads is in poor condition and warrants resurfacing.

3.0 PROJECT ALTERNATIVES

Alternatives evaluated during the PD&E Study include the No-Build Alternative and the Build Alternative as described below. Alternatives were developed and evaluated based on the ability to meet the project purpose and need.

3.1 No-Build Alternative

The No-Build Alternative assumes that no proposed improvements from the project would be implemented within the project corridor. It serves as a baseline for comparison against the Build Alternative. It includes on-going construction projects and funded or programmed improvements scheduled to be opened to traffic in the analysis years being considered. These improvements must be part of the FDOT's adopted Five-Year Work Program, Miami-Dade County Transportation Planning Organization (TPO), Long Range Transportation Plan (LRTP), transportation elements of Local Government Comprehensive Plans (LGCP), or developer-funded transportation improvements specified in approved development orders. This alternative is considered to be a viable alternative to serve as a comparison to the study's proposed Build Alternative.

The advantage of the No-Build Alternative is that it requires no expenditure of public funds from the project for design, right-of-way acquisition, construction or utility relocation. In addition, there would be no disruptions due to construction from the project and no direct or indirect impacts to the environment and/or the socio-economic characteristics of the project area. However, the No-Build Alternative does not address the purpose and need of the project and operational and safety conditions within the project area will become progressively worse as traffic volumes continue to increase.

3.2 Build Alternative

3.2.1 SR 826

Within the project limits, northbound SR 826 improvements are limited to within the NW 103rd Street interchange. The proposed northbound improvements include widening of the mainline at the NW 103rd Street interchange to correct the existing substandard inside and outside shoulder widths; widening along the northbound NW 103rd Street off-ramp; widening of the northbound bridge over NW 103rd Street; and milling and resurfacing of the area.

There are no changes to the typical section along SR 826 northbound other than the provision of wider shoulders within the NW 103rd Street interchange. Similarly, the existing northbound EL system will not be modified by this project.

The proposed southbound SR 826 improvements include widening the SR 826 mainline from NW 74th Street to south of the US 27 interchange and from north of US 27 to north of NW 103rd Street. The EL system will be modified to relocate the EL ingress point from north of the I-75 interchange to NW 103rd Street, completely eliminating the SR 826 EL north of NW 103rd Street (converting it to a GP lane) and providing enhanced access to the EL system to the local community. At the NW 103rd Street interchange, the pier of the NW 103rd Street westbound flyover on-ramp to SR

826 southbound will be modified to accommodate SR 826 southbound mainline widening. In addition, the NW 103rd Street on/off ramps will be widened, pushing out the mechanically stabilized earth (MSE) walls. Four (4) SR 826 mainline bridges are required to be widened over NW 74th Street, Metrorail, FEC Railroad, and NW 103rd Street. The improvements also include performing a comprehensive milling and resurfacing plan throughout the project limits.

The proposed SR 826 southbound typical section will consist of four (4) GP lanes from the end project (north of NW 154th Street) to the I-75 interchange; a single I-75 EL and five (5) GP lanes from the I-75 Interchange to NW 103rd Street interchange; and two (2) EL and four (4) GP lanes from the NW 103rd Street interchange to the begin project (south of NW 36th Street).

No new right-of-way (northbound and/or southbound) will be required to accommodate the proposed improvements associated with the Build Alternative.

See **Figure 3-1** and **Figure 3-2** for the proposed SR 826 typical sections in the vicinity of NW 103rd Street.

Figure 3 - 1: Proposed SR 826 Southbound Typical Section

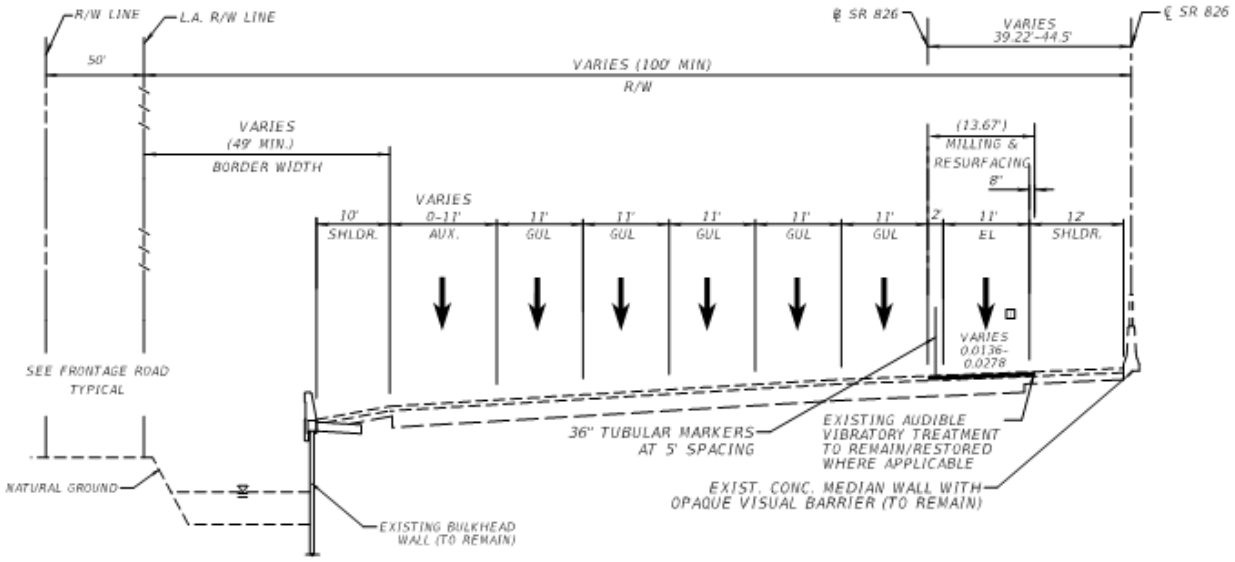
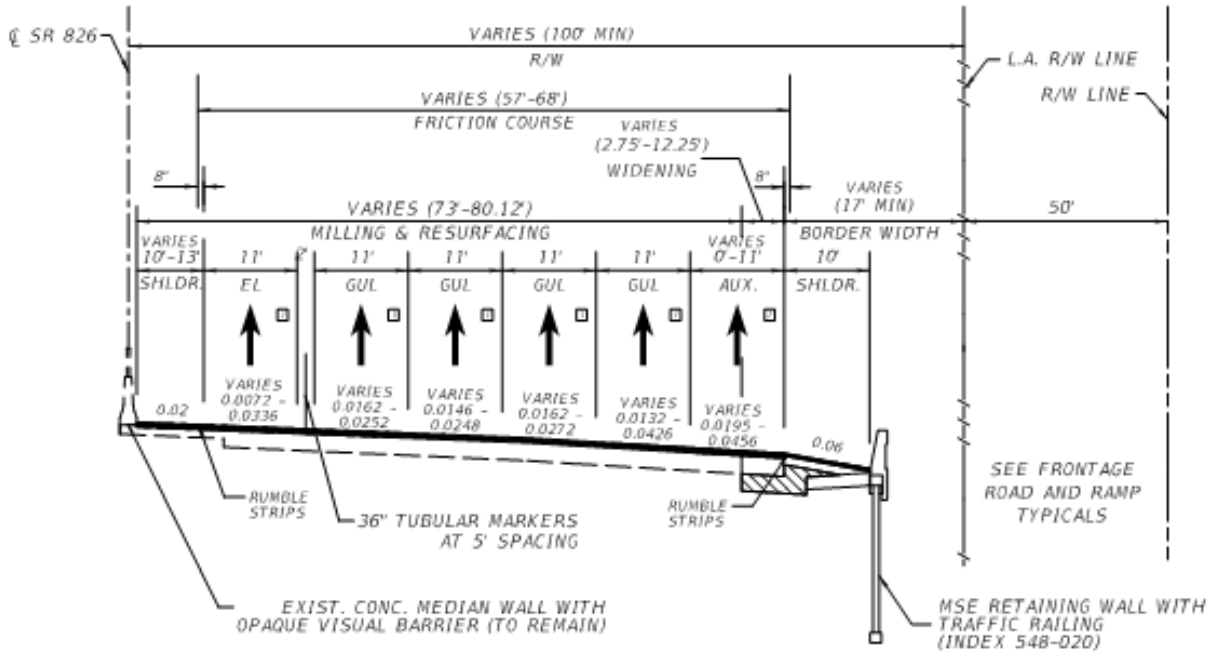


Figure 3 - 2: Proposed SR 826 Northbound Typical Section



3.2.2 Frontage Roads

The proposed project will improve the frontage road system on both sides of SR 826 between US 27 and NW 122nd Street to correct deficient pavement conditions; upgrade sub-standard ground-mounted signs and pavement markings; comply with the American with Disabilities Act (ADA); replace existing guardrail; upgrade bridge railings; and construct new paved shoulders to meet criteria and improve overall safety of the corridor. Additionally, the proposed frontage road improvements will upgrade signals and landscaping in the area.

The proposed SR 826 southbound mainline widening and the modification of the pier of the NW 103rd Street westbound flyover on-ramp to SR 826 southbound will require the realignment of the West Frontage Road/NW 77th Avenue. The realignment of this two-way frontage road begins south of the NW 98th Street intersection and ends south of the NW 103rd Street intersection.

The frontage road improvements include milling and resurfacing the existing pavement; adjusting existing storm drain manhole tops, utility manhole tops, and utility valves within the limits of the resurfacing; upgrading sub-standard pedestrian curb ramps and detectable warning surfaces along East Frontage Road/W 20th Avenue to meet ADA criteria; constructing new sidewalk along East Frontage Road/W 20th Avenue to connect the gaps between existing sidewalk segments and to reconstruct damaged or uneven sidewalks; upgrading the guardrail, guardrail terminals, guardrail transition connections to the bridge traffic railings, and guardrail-to-rigid barrier transition connections; constructing 5-foot-wide paved shoulders in segments without existing roadside landscaping or utility impacts; adjusting existing ditch-bottom inlets impacted by the proposed shoulder widening; and constructing additional ditch-bottom inlets where required along the shoulder widening areas. No new right-of-way will be required to accommodate the proposed frontage roads improvements associated with the Build Alternative.

The project includes upgrading existing signing and pavement markings along the frontage road systems. Proposed signalization improvements will consist of mast arm signal poles and safety measures at the two (2) signalized intersections at NW 103rd Street; as well as the upgrade of the pedestrian signals at the two (2) signalized intersections at W 60th Street. Area landscaping modifications will include tree relocations in areas impacted by the proposed shoulder widening.

See **Figure 3-3 – Figure 3-5** for proposed frontage road typical sections.

Figure 3 - 3: Proposed Frontage Road (Undivided)
Typical Section 1 (East Frontage Road/W 20th Avenue)

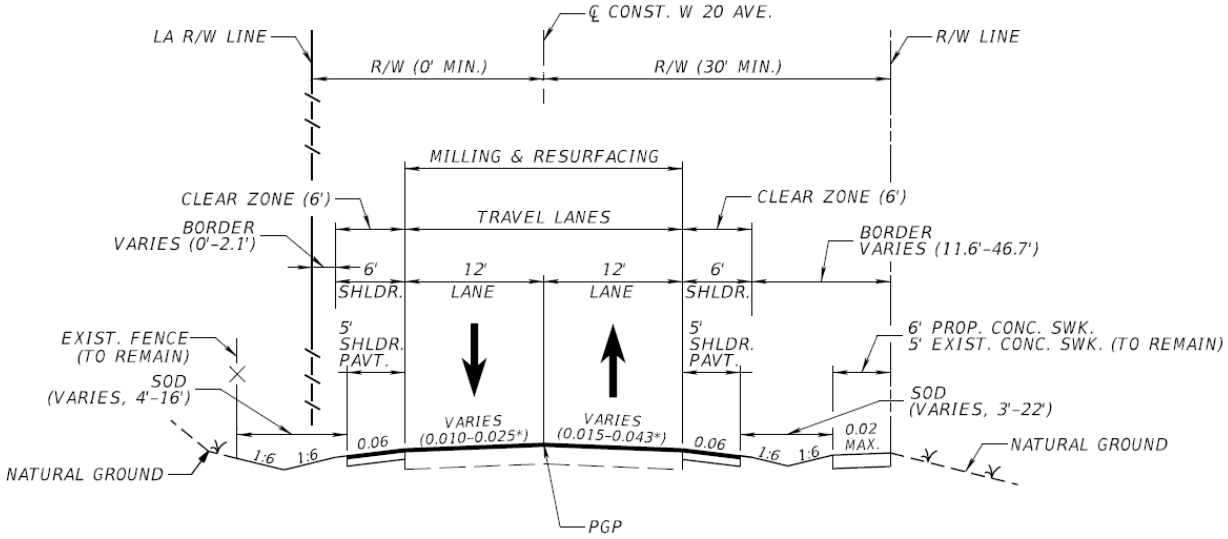


Figure 3 - 4: Proposed Frontage Road (One-Way)
Typical Section 6 (West Frontage Road/NW 77th Avenue)

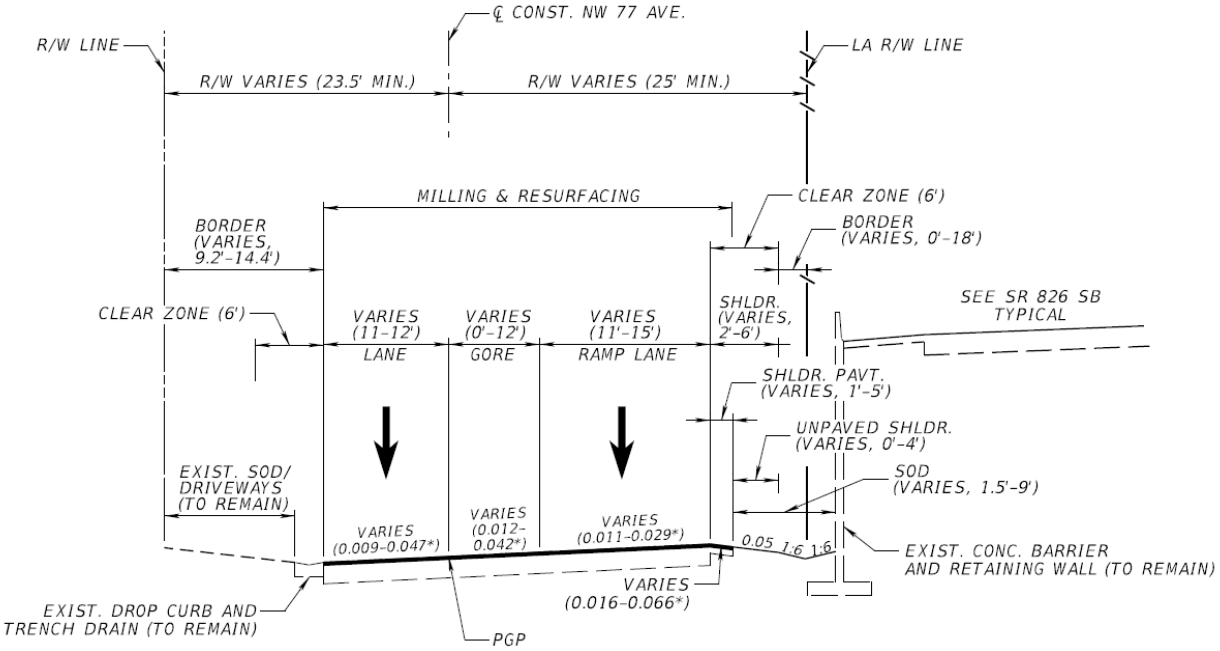
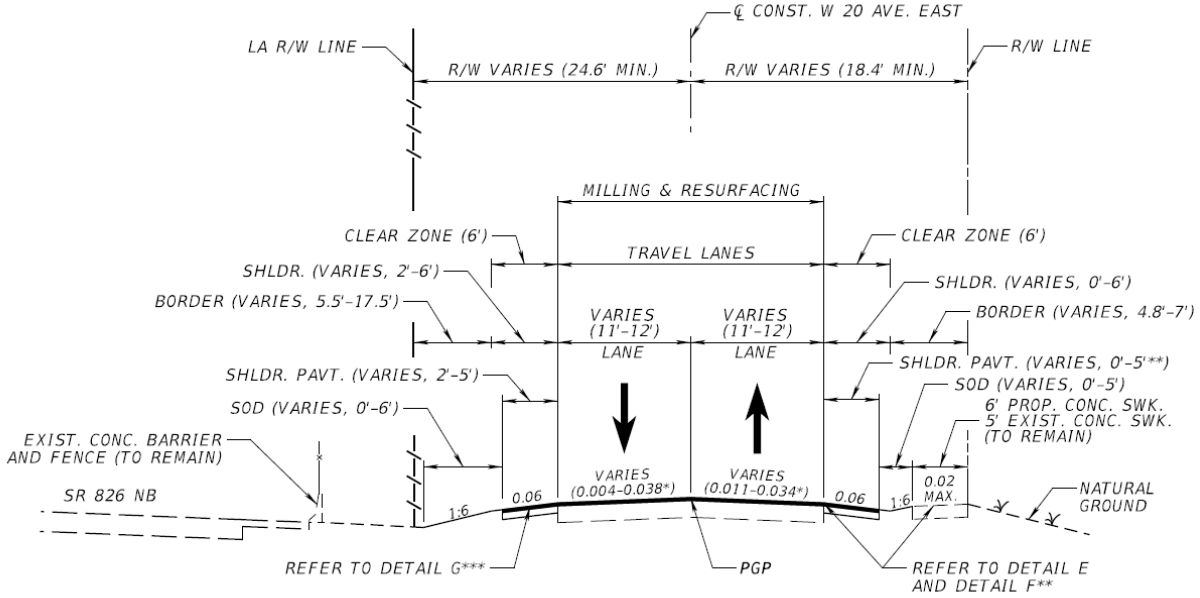


Figure 3 - 5: Proposed Frontage Road (Undivided)
Typical Section 8 (East Frontage Road/W 20th Avenue East)



3.2.3 Intelligent Transportation System (ITS)

Within the project limits, the Intelligent Transportation System (ITS) will be adjusted to support the earlier mentioned roadway changes. ITS improvements include the installation of a new tolling site along both the northbound and southbound directions that will require a specific pavement design to be implemented 50 feet north and south of the gantry location. The project will also include the installation and replacement of impacted Closed-Circuit Television (CCTV) cameras, Dynamic Message Signs (DMS), Microwave Vehicle Detection Systems (MVDS), and Ramp Signal Systems as necessary.

4.0 TRAFFIC NOISE ANALYSIS

Prior to conducting a detailed noise analysis, a desk-top review of the project was performed to determine if noise levels will likely increase as a result of the proposed improvements, if noise sensitive receptor sites are located within the project area, or if noise impacts are likely to occur. The desk-top review indicated that the proposed improvements associated with the project may cause design year (2045) traffic noise levels to approach or exceed the Federal Highway Administration (FHWA) Noise Abatement Criteria (NAC) at noise sensitive sites within the project limits. Therefore, in accordance with Part 2, Chapter 18 – *Highway Traffic Noise* of the FDOT PD&E Manual, a more detailed noise analysis was performed. The methods and results of this traffic noise analysis are summarized within this section and involved the following procedures:

- Identification of noise sensitive receptor sites;
- Field measurement of noise levels and noise model validation;
- Prediction of existing and future noise levels;
- Assessment of traffic noise impacts; and,
- Evaluation of the feasibility and reasonableness of noise abatement.

Three (3) recent PD&E phase noise analyses have been completed by FDOT within the limits of this project. These include the following:

- SR 93/I-75 PD&E Study – I-75 Corridor-SR 826 to Broward County Line; SR 826 Corridor-NW 103rd Street to NW 154th Street – FM# 420669-1-22-01 (May 2011);
- SR 826/Palmetto Expressway Express Lanes PD&E Study – South of SR 836/Dolphin Expressway to SR 932/NW 103rd Street – FM# 418423-3-22-01 (November 2012); and
- SR 826/Palmetto Expressway Express Lanes PD&E Study – SR 93/I-75 to the Golden Glades Interchange – FM# 418423-1-22-01 (April 2016).

The methodology and results of these noise studies are summarized in the Noise Study Reports (NSR) for these projects. Where appropriate, data from these previous studies were used (and updated as necessary) for this traffic noise analysis as indicated in the following sections. This includes FHWA Traffic Noise Model (TNM) (Version 2.5 - February 2004) input files, receptor locations/data, site data, and roadway plans from the previous studies that reflect the current project conditions.

As with the previous PD&E phase noise analyses, TNM 2.5 was used to predict traffic noise levels and to analyze the effectiveness of noise barriers. This model estimates the acoustic intensity at a noise sensitive site (the receptor) from a series of roadway segments (the source). Model-predicted noise levels are influenced by several factors, such as vehicle speed and distribution of vehicle types. Noise levels are also affected by characteristics of the source-to-receptor site path, including the effects of intervening barriers, obstructions (houses, trees, etc.), ground surface type (hard or soft) and topography. Elevation data for the existing travel lanes and the limited-access right-of-way lines were obtained from existing roadway plans where available.

Noise levels presented in this report represent the hourly equivalent sound level [Leq(h)]. The Leq(h) is the steady-state sound level, which contains the same amount of acoustic energy as the

actual time-varying sound level over a one-hour period. The Leq(h) is measured in A-weighted decibels [abbreviated as dB(A)], which closely approximate the range of frequencies a human ear can hear.

4.1 Noise Sensitive Sites

The FHWA has established NAC for seven (7) land use activity categories. These criteria determine when an impact occurs and when consideration of noise abatement is required. Maximum noise level thresholds have been established for five (5) of these activity categories. These maximum thresholds, or criteria levels, represent acceptable traffic noise level conditions. The NAC levels are presented in **Table 4-1**. Noise abatement measures must be considered when predicted noise levels approach or exceed the NAC levels or when a substantial noise increase occurs. The FDOT defines "approach" as within one (1) dB(A) of the FHWA criteria. A substantial noise increase is defined as when the existing noise level is predicted to be exceeded by 15 dB(A) or more as a result of the transportation improvement project.

Table 4 - 1: Noise Abatement Criteria

Activity Category	Activity Leq(H)[1]		Evaluation Location	Description of Activity Category
	FHWA	FDOT		
A	57	56	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	66	Exterior	Residential
C[2]	67	66	Exterior	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreational areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[2]	72	71	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	–	–	–	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	–	–	–	Undeveloped lands that are not permitted.

(Based on Table 1 of 23 CFR Part 772)
[1] The Leq(h) Activity Criteria values are for impact determination only, and are not a design standard for noise abatement measures.
[2] Includes undeveloped lands permitted for this activity category.
Note: FDOT defines that a substantial noise increase occurs when the existing noise level is predicted to be exceeded by 15 decibels or more as a result of the transportation improvement project. When this occurs, the requirement for abatement consideration will be followed.

The developed lands along the project corridor were evaluated to identify the noise sensitive receptor sites that may be impacted by traffic noise associated with the proposed improvements. Noise sensitive receptor sites represent any property where frequent exterior human use occurs and where a lowered noise level would be of benefit. This includes residential units (FHWA Noise Abatement Activity Category B), other noise sensitive areas including parks, playgrounds, medical facilities, schools, and places of worship (Category C) and certain commercial properties (Category E). Noise sensitive sites also include interior use areas where no exterior activities occur for facilities such as auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, recording studios and schools (Category D). Land uses along the project corridor that are found in Category F include non-noise sensitive use such as retail facilities, warehouses and rail yards. A search of Miami-Dade County permit records did not find any permits for construction of any new noise sensitive sites along the project corridor.

4.1.1 Southern Project Terminus to US 27

There are no sensitive sites along this segment of the project corridor that are likely to be impacted by traffic noise due to the planned improvements.

4.1.2 US 27 to NW 103rd Street

Noise sensitive sites along the segment of SR 826 from US 27 to NW 103rd Street are depicted on **Sheets 1 and 2** in **Appendix A**. Noise sensitive sites are found along both sides of this project segment. These noise sensitive sites include approximately 130 condominiums in the Towers of Westland community in the southeast corner of the SR 826/NW 103rd Street interchange. Other noise sensitive sites include a hotel pool, school playgrounds, a memorial park, outdoor eating areas and medical facility interiors. This segment of the project also includes commercial properties, light-industrial sites and other uses that are not considered noise sensitive (i.e., Activity Category F). There are no existing noise barriers along this project segment.

4.1.3 NW 103rd Street to NW 122nd Street

Noise sensitive sites along the segment of SR 826 from NW 103rd Street to NW 122nd Street are depicted on **Sheets 2 through 4** in **Appendix A**. Noise sensitive sites are found along both sides of this project segment. These noise sensitive sites include approximately 360 condominiums, townhomes and single-family homes in several communities along this project segment and two (2) hotel pools. This segment of the project also includes commercial properties, light-industrial sites and other uses that are not considered noise sensitive (i.e., Activity Category F). There are no existing noise barriers along this project segment.

4.1.4 NW 122nd Street to I-75

Noise sensitive sites along the segment of SR 826 from NW 122nd Street to I-75 are depicted on **Sheets 5 and 6** in **Appendix A**. Noise sensitive sites are only found along the west side of this project segment. These noise sensitive sites include approximately 18 condominiums in the Royal Palms and Poinciana Royale Villas communities. Other noise sensitive sites include the interiors of a hospital and a religious facility. This segment of the project also includes commercial properties, light-industrial sites and other uses that are not considered noise sensitive (i.e., Activity Category F). There are no existing noise barriers along this project segment.

4.1.5 I-75 to NW 154th Street

Noise sensitive sites along the segment of SR 826 from I-75 to NW 154th Street are depicted on **Sheet 7** in **Appendix A**. Noise sensitive sites are only found along the east side of this project segment and include the interiors of three (3) medical facilities. This segment of the project also includes commercial properties, utility sites and other uses that are not considered noise sensitive (i.e., Activity Category F). There are no existing noise barriers along this project segment.

4.2 Field Measurement of Traffic Noise Levels and Model Validation

Measurements of existing noise levels along the project corridor were performed for the three (3) recent FDOT PD&E Studies cited in Section 4 above. Conditions along the project corridor were determined by FDOT to have not changed substantially enough to affect the overall noise environment along the project corridor such that new field measured noise levels were necessary. Also, since the previously validated TNM input files from these projects form the basis of the input files for this current traffic noise analysis, new field measurements for the purposes of validating TNM inputs were not necessary.

4.3 Noise Model Development

As noted earlier in this chapter, data from the previous projects along this corridor were used with this current project. This included updating the TNM input files from the previous projects to represent the existing year (2019) conditions, and the design year (2045) No-Build and recommended build alternatives. The new TNM models were modified for the current conditions using GIS data and were further modified for the Build Alternative using the project's master plans.

Traffic data used in the TNM models were derived from peak-hour traffic data provided by the FDOT traffic consultant for the project and from data contained in the 2020 FDOT Quality/Level of Service Handbook tables. These data may be found in **Appendix B**. According to Chapter 18 of the PD&E Manual, "Maximum peak-hourly traffic representing Level of Service (LOS) "C", or demand LOS of "A", "B", or "C" will be used (unless analysis shows that other conditions create a "worst-case" level)". In cases where traffic volumes on project roadways were predicted to operate at worse than LOS C, the LOS C project data were used. In overcapacity situations, this represents the highest traffic volume traveling at the highest average speed, which typically generates the highest noise levels at a given site during a normal day.

Representative receptor sites were used in the TNM model inputs to estimate noise levels associated with existing and future conditions within the project study area. These sites were chosen based on noise sensitivity, roadway proximity, anticipated impacts from the proposed project, and homogeneity (i.e., the site is representative of other nearby sites). For single-family homes, traffic noise levels were predicted at the edge of the dwelling unit closest to the nearest primary roadway. For other noise sensitive sites that may be impacted, traffic noise levels were predicted where the exterior activity occurs. For the prediction of interior noise levels, receptor sites were placed ten (10) feet inside the building at the edge closest to roadway. Building noise reduction factors identified in *Figure 18-3* of Chapter 18 of the PD&E Manual and closed window conditions were used to estimate the noise reduction due to the physical structure.

Model receptor sites from the previous PD&E Studies were augmented with new sites where necessary. First floor receptor sites were modeled five (5) feet above the local ground elevation, second floor receptor sites were modeled at 15 feet above ground level and so on for higher floors. Typically, the first two (2) or three (3) letters used in the labels for the model receptors are representative of the noise sensitive areas where the receptor sites are located (e.g., WG for Westland Gardens). One-hundred thirty-five model receptors representative of 508 residential noise sensitive sites and the 15 non-residential noise sensitive locations described in **Sections 4.1.1** through **4.1.5** of this report were input into the TNM model. These locations are described by segment in **Table 4-2** and are shown in **Appendix A – Noise Sensitive Receptors Map**.

4.4 Predicted Noise Levels

The TNM results for the worst-case traffic conditions for the existing (2019) conditions and the Design Year (2045) No-Build and Build Alternative are summarized in the following sections. The predicted traffic noise levels for individual model receptors are presented in **Table 4-2**.

4.4.1 US 27 to NW 103rd Street

Existing traffic noise levels at the residences along SR 826 between US 27 and NW 103rd Street are predicted to range from 63.6 to 77.8 dB(A) during peak periods. Design year worst-case traffic noise levels with the No-Build Alternative are predicted to range from 64.0 to 78.3 dB(A) and to be no more than 0.6 dB(A) greater than existing levels at these residences. With the Build Alternative, design year worst-case traffic noise levels at the residences are predicted to range from 64.4 to 79.0 dB(A). These predicted levels are no more than 1.9 dB(A) greater than the existing levels and 1.4 dB(A) greater than those of the No-Build Alternative.

Existing traffic noise levels at the non-residential noise sensitive sites along this segment of SR 826 are predicted to range from 46.9 dB(A) inside the Southern Winds Hospital to 75.7 dB(A) at the playground at the Mater Academy Elementary School during peak periods. Design year worst-case traffic noise levels with the No-Build Alternative are predicted to range from 47.4 to 76.5 dB(A) at the same locations, no more than 0.9 dB(A) greater than existing levels at these sites. Design year worst-case traffic noise levels with the recommended Build Alternative are predicted to range from 47.8 to 76.7 dB(A) at the non-residential sites; no more than 1.4 dB(A) greater than the existing levels and 0.4 dB(A) greater than those of the No-Build Alternative.

4.4.2 NW 103rd Street to NW 122nd Street

Existing traffic noise levels at the residences along SR 826 between NW 103rd Street and NW 122nd Street are predicted to range from 56.7 to 77.1 dB(A) during peak periods. Design year worst-case traffic noise levels with the No-Build Alternative are predicted to range from 57.3 to 77.4 dB(A) and to be no more than 0.9 dB(A) greater than existing levels at these residences. With the Build Alternative, design year worst-case traffic noise levels at the residences are predicted to range from 56.5 to 77.6 dB(A). These predicted levels are no more than 1.5 dB(A) greater than the existing levels and 0.9 dB(A) greater than those of the No-Build Alternative.

Table 4 - 2: Modeled Noise Receptor Locations and Noise Analysis Results

Representative Model Receptor	Location	Type	Description (Noise Abatement Activity Category)	FDOT Noise Abatement Approach Criteria [dB(A)]	Location (Station)	Number Of Noise Sensitive Sites	Distance To Nearest Traffic Lane* [Existing/ No-Build/Build] (Feet)	Predicted Traffic Noise Levels [LAeq1h, dB(A)]		
								Existing (2019)	Design Year (2045)	
									No-Build	Build
SR 826 – US 27 to NW 103rd Street										
CFN	Citrus Family Network	Medical	Medical Facility Interior (D)	51	505+00	1	160/160/160	47.3	47.8	48.2
SWH	Southern Winds Hospital	Medical	Medical Facility Interior (D)	51	507+80	1	175/175/175	46.9	47.4	47.8
FNU-Tables	Florida National University	School Common Area	School (C)	66	514+00	SLU	165/165/165	69.0	69.5	**69.7**
FNU-PG	Florida National University	School Playground	School Playground (C)	66	514+00	SLU	230/230/230	67.3	67.8	**68.1**
ToW R1(a,b,c,d,e)	Towers of Westland	MFR	Residential (B)	66	516+60	2/2/2/2/2	190/190/190	66.6, 69.3, 69.9, 70.8, 71.3	67.0, 69.8, 70.4, 71.2, 71.7	**67.4, 70.1, 70.8, 71.6, 72.2**
ToW R2 (a,b,c,d,e)		MFR	Residential (B)	66	516+60	2/2/2/2/2	300/300/300	63.6, 66.8, 67.7, 68.2, 69.1	64.0, 67.3, 68.2, 68.7, 69.6	64.4, **67.6, 68.6, 69.2, 70.0**
ToW R3 (a,b,c,d,e)		MFR	Residential (B)	66	516+80	1/1/1/1/1	175/175/175	71.1, 72.9, 73.6, 74.3, 74.6	71.6, 73.4, 74.1, 74.7, 75.0	**72.0, 73.7, 74.5, 75.3, 75.6**
ToW R4 (a,b,c,d,e)		MFR	Residential (B)	66	518+00	7/7/7/7/7	230/230/225	68.3, 69.2, 70.5, 71.1, 71.6	68.7, 69.7, 70.9, 71.5, 72.1	**69.2, 70.1, 71.5, 72.0, 72.6**
ToW R5 (a,b,c,d,e)		MFR	Residential (B)	66	519+80	6/6/6/6/6	115/115/110	70.6, 74.4, 75.3, 75.4, 75.6	71.1, 74.8, 75.8, 75.9, 76.1	**71.7, 75.2, 76.4, 76.6, 76.8**
ToW R6 (a,b,c,d,e)		MFR	Residential (B)	66	521+20	4/4/4/4/4	60/60/55	67.8, 76.2, 77.5, 77.7, 77.8	68.4, 76.7, 78.1, 78.2, 78.3	**69.3, 77.4, 78.8, 78.9, 79.0**
ToW R7 (a,b,c,d,e)		MFR	Residential (B)	66	521+80	2/2/2/2/2	75/75/80	65.1, 69.4, 72.1, 72.9, 73.2	65.5, 69.9, 72.7, 73.4, 73.7	**66.8, 71.3, 73.1, 74.0, 74.4**
ToW R8 (a,b,c,d,e)		MFR	Residential (B)	66	521+80	2/2/2/2/2	145/145/140	64.5, 67.0, 69.0, 70.4, 70.7	64.9, 67.5, 69.6, 70.9, 71.2	65.5, **68.5, 70.0, 71.3, 71.7**
RAM-P	Ramada Inn	Hotel Pool	Sensitive Commercial (E)	71	526+00	SLU	180/180/175	63.0	63.4	63.0
DQPlaza	Don Quijote Plaza	Park	Park (C)	66	529+40	SLU	95/95/90	71.0	71.3	**71.0**
DCS-Tables	Don Camaron Seafood	Outdoor Seating Area	Sensitive Commercial (E)	71	504+60	SLU	130/130/130	72.1	73.0	**73.5**
MPG	Mater Academy Elementary	School Playground	School Playground (C)	66	512+80	SLU	65/65/65	75.7	76.5	**76.7**
SR 826 – NW 103rd Street to NW 122nd Street										
HJPool	Howard Johnson Pool	Hotel	Sensitive Commercial (E)	71	533+40	SLU	245/245/245	66.1	66.2	66.5
WE1 (b,c,d,e)	Westland Eden	MFR	Residence (B)	66	546+00	5,5,5,5	140/140/140	74.9, 75.7, 76.1, 76.1	75.2, 76.0, 76.4, 76.5	**75.4, 76.3, 76.7, 76.8**
WE2 (b,c,d,e)		MFR	Residence (B)	66	547+20	2,2,2,2	175/175/175	71.4, 72.3, 72.9, 73.1	71.6, 72.6, 73.3, 73.5	**71.9, 72.8, 73.4, 73.7**
WV1	West Lake, Westland Village	MFR	Residence (B)	66	546+00	2	175/175/175	70.4	71.0	**71.9**
WV2		MFR	Residence (B)	66	546+00	2	250/250/250	67.7	68.2	**69.1**
WV3		MFR	Residence (B)	66	547+80	6	150/150/150	71.5	72.1	**72.5**
WV4		MFR	Residence (B)	66	548+00	7	260/260/260	61.5	62.2	62.3
WV5		MFR	Residence (B)	66	550+20	4	190/190/190	67.3	68.2	**68.3**
WV6		MFR	Residence (B)	66	551+80	2	270/270/270	65.8	66.6	**66.7**
WV7		MFR	Residence (B)	66	551+80	4	190/190/190	69.0	69.8	**69.9**
MG1(a,b,c)	Meadowgreen	MFR	Residence (B)	66	549+00	5,5,5	245/245/245	64.0, 66.6, 69.6	64.3, 66.8, 69.9	65.1, **67.2, 70.1**
PWG1(b,c,d,e)	Palm West Gardens	MFR	Residence (B)	66	551+80	6,6,6,6	120/120/120	75.1, 75.9, 76.2, 76.3	75.3, 76.2, 76.6, 76.7	**75.5, 76.4, 76.8, 76.8**
PWG2(b,c,d,e)		MFR	Residence (B)	66	554+20	6,6,6,6	125/125/125	74.9, 75.7, 76.2, 76.2	75.1, 76.0, 76.4, 76.5	**75.3, 76.1, 76.6, 76.7**
CH1	Unnamed Community	SFH	Residence (B)	66	555+40	5	160/160/160	72.6	73.3	**73.5**
CH2		SFH	Residence (B)	66	555+40	5	325/325/325	63.3	64.0	64.0
CH3		SFH	Residence (B)	66	559+00	9	165/165/165	70.8	71.3	**71.5**
CH4		SFH	Residence (B)	66	559+00	9	325/325/325	61.2	61.8	62.0
CH5		SFH	Residence (B)	66	561+20	5	165/165/165	69.6	70.0	**70.2**

Representative Model Receptor	Location	Type	Description (Noise Abatement Activity Category)	FDOT Noise Abatement Approach Criteria [dB(A)]	Location (Station)	Number Of Noise Sensitive Sites	Distance To Nearest Traffic Lane* [Existing/ No-Build/Build] (Feet)	Predicted Traffic Noise Levels [LAeq1h, dB(A)]		
								Existing (2019)	Design Year (2045)	
									No-Build	Build
CH6		SFH	Residence (B)	66	561+20	5	320/320/320	63.6	64.2	64.4
CH7		SFH	Residence (B)	66	565+00	20	300/300/300	56.7	57.3	56.5
WG1(a,b,c,d)	Westland Gardens	MFR	Residence (B)	66	556+40	4,4,4,4	155/155/155	71.2, 73.7, 74.7, 75.3	71.3, 73.9, 74.9, 75.5	**71.5, 74.0, 75.0, 75.6**
WG2(a,b,c,d)		MFR	Residence (B)	66	555+60	2,2,2,2	210/210/210	64.9, 68.1, 68.8, 69.8	65.1, 68.2, 69.0, 70.0	65.3, **68.4, 69.2, 70.1**
WG3(a,b,c,d)		MFR	Residence (B)	66	561+00	4,4,4,4	150/150/150	69.1, 71.6, 74.2, 75.0	69.2, 71.8, 74.3, 75.2	**69.6, 72.0, 74.5, 75.4**
WG4(a,b,c,d)		MFR	Residence (B)	66	558+00	2,2,2,2	300/300/300	65.2, 68.1, 69.6, 70.0	65.4, 68.2, 69.7, 70.2	65.7, **68.4, 69.9, 70.3**
WG5(a,b,c,d)		MFR	Residence (B)	66	560+60	2,2,2,2	200/200/200	65.7, 68.1, 70.5, 71.0	65.9, 68.2, 70.6, 71.2	**66.2, 68.5, 70.8, 71.4**
CP1(a,b)	Conquistador Park	MFR	Residence (B)	66	563+40	6,6	85/85/85	69.8, 72.4	69.9, 72.5	**70.1, 72.8**
PGN1(b,c,d)	Palmetto, Palmetto Gardens North	MFR	Residence (B)	66	572+40	11,11,11	85/85/85	71.8, 75.8, 76.9	71.9, 75.9, 77.1	**72.2, 76.1, 77.3**
VL1(b,c,d)	Villa Luisa, Andes	MFR	Residence (B)	66	576+00	12,12,12	80/80/80	74.1, 76.6, 77.1	74.3, 76.8, 77.4	**74.6, 77.0, 77.6**
PSL1	Palm Springs Lakes	SFH	Residence (B)	66	582+00	2	150/150/150	68.0	68.3	**68.6**
PSL2		SFH	Residence (B)	66	582+00	2	70/70/70	72.9	73.1	**73.4**
PSL3		SFH	Residence (B)	66	584+20	2	110/110/110	71.5	71.7	**72.1**
PSL4		SFH	Residence (B)	66	584+20	2	190/190/190	66.6	66.9	**67.4**
LA1(a,b,c)	Los Arboles	MFR	Residence (B)	66	587+40	4,4,4	405/405/405	64.4, 68.3, 69.7	64.8, 68.7, 70.0	65.3, **69.1, 70.4**
LA2(a,b,c)		MFR	Residence (B)	66	587+40	4,4,4	600/600/600	59.9, 62.8, 64.9	60.2, 63.0, 65.1	60.7, 63.4, 65.4
LA3(a,b,c)		MFR	Residence (B)	66	588+40	3,3,3	465/465/465	64.1, 66.5, 67.2	64.5, 66.9, 67.6	65.1, **67.3, 68.1**
LA4(a,b,c)		MFR	Residence (B)	66	589+60	2,2,2	720/720/720	61.3, 63.4, 64.0	61.7, 63.8, 64.4	62.2, 64.3, 64.9
HI-Pool	Holiday Inn Pool	Hotel	Sensitive Commercial (E)	71	589+20	SLU	430/430/430	61.2	62.2	62.5
SR 826 – NW 122nd Street to I-75										
PGH	Palmetto General Hospital	Medical	Medical Facility Interior (D)	51	603+00	SLU	530/530/530	36.1	37.3	37.2
RP	Royal Palms	MFR	Residence (B)	66	816+00	10	225/225/225	52.9	53.5	53.7
PRV1	Poinciana Royale Villas	MFR	Residence (B)	66	817+80	4	160/160/160	70.2	71.0	**71.2**
PRV2	Poinciana Royale Villas	MFR	Residence (B)	66	819+60	4	155/155/155	70.2	71.2	**71.2**
HCofC†	Hialeah Church of Christ	Religious Facility	Church Interior (D)	51	827+40	SLU	255/255/255	45.5	46.4	46.5
SR 826 – I-75 to NW 154th Street										
BMP	Baptist Medical Plaza	Medical	Medical Facility Interior (D)	51	877+80	SLU	85/85/85	46.3	46.5	43.2
CH	Catholic Hospice	Medical	Medical Facility Interior (D)	51	881+00	SLU	85/85/85	46.4	46.6	45.7
NCML	Nicklaus Children's Miami Lakes	Medical	Medical Facility Interior (D)	51	887+80	SLU	95/95/95	46.9	47.1	48.6

Notes: * = To existing edge-of-pavement of the nearest travel lane. **Bold/Red** numbers indicate Build Alternative noise levels equal or exceeding FDOT Noise Abatement Criteria
SFH = Single-Family Home, MFR = Multi-Family Residential (i.e., apartments, condominiums), SLU = Special Land Use site
a = 1st floor, b = 2nd floor, c = 3rd floor, d = 4th floor and e = 5th floor.

Existing traffic noise levels at the non-residential noise sensitive sites along this segment of SR 826 are predicted to range from 61.2 dB(A) at the Holiday Inn pool to 66.1 dB(A) at the Howard Johnsons pool during peak periods. Design year worst-case traffic noise levels with the No-Build Alternative are predicted to range from 62.2 to 66.2 dB(A) at the same locations, no more than 1.0 dB(A) greater than existing levels. Design year worst-case traffic noise levels with the recommended Build Alternative are predicted to range from 62.5 to 66.5 dB(A); no more than 1.3 dB(A) greater than existing levels and 0.3 dB(A) greater than those of the No-Build Alternative.

4.4.3 NW 122nd Street to I-75

Existing traffic noise levels at the residences along SR 826 between NW 122nd Street and I-75 are predicted to range from 52.9 to 70.2 dB(A) during peak periods. Design year worst-case traffic noise levels with the No-Build Alternative are predicted to range from 53.5 to 71.2 dB(A) and to be no more than 1.0 dB(A) greater than existing levels at these residences. With the Build Alternative, design year worst-case traffic noise levels at the residences are predicted to range from 53.7 to 71.2 dB(A). These predicted levels are no more than 1.0 dB(A) greater than the existing levels and 0.1 dB(A) greater than those of the No-Build Alternative.

Existing traffic noise levels at the non-residential noise sensitive sites along this segment of SR 826 are predicted to range from 36.1 dB(A) inside the Palmetto General Hospital to 45.5 dB(A) inside the Hialeah Church of Christ during peak periods. Design year worst-case traffic noise levels with the No-Build Alternative are predicted to range from 37.3 to 46.4 dB(A) at the same locations, no more than 1.2 dB(A) greater than existing levels at these sites. Design year worst-case traffic noise levels with the recommended Build Alternative are predicted to range from 37.2 to 46.5 dB(A) at the non-residential sites; no more than 1.1 dB(A) greater than the existing levels and 0.1 dB(A) greater than those of the No-Build Alternative.

4.4.4 I-75 to NW 154th Street

No residences are found along this segment of SR 826. Existing traffic noise levels at the non-residential noise sensitive sites along this segment of SR 826 are predicted to range from 46.3 dB(A) inside the Baptist Medical Plaza to 46.9 dB(A) inside the Nicklaus Children's-Miami Lakes medical facility during peak periods. Design year worst-case traffic noise levels with the No-Build Alternative are predicted to range from 46.5 to 47.1 dB(A) at the same locations, no more than 0.2 dB(A) greater than existing levels at these sites. Design year worst-case traffic noise levels with the recommended Build Alternative are predicted to range from 43.2 to 48.6 dB(A); no more than 1.7 dB(A) greater than the existing levels and 1.5 dB(A) greater than those of the No-Build Alternative.

4.5 Noise Impact Analysis

Approximately 508 residences with the potential to be impacted by the proposed improvements were identified along the SR 826 project corridor between NW 74th Street and NW 154th Street. These residences include single-family homes and apartment/ condominium/townhome complexes. Also, fifteen noise sensitive non-residential/special-use locations were identified in the project study area. These include a park, playgrounds, outdoor seating areas, hotel pools and

medical facility interiors. Under the existing conditions, the dominant source of noise at the nearby noise sensitive sites is traffic on SR 826.

During the design year, the primary source of noise in the area is expected to remain traffic on SR 826. The planned improvements will include:

- Widening the northbound SR 826 mainline and bridge at the NW 103rd Street interchange to correct the existing substandard inside and outside shoulder widths;
- Minor widening and vertical alignment modifications within the existing footprint of the northbound NW 103rd Street off-ramp;
- Widening the southbound SR 826 mainline from NW 74th Street to south of the US 27 interchange and from north of US 27 to north of NW 103rd Street;
- Modifying the EL system to relocate the EL ingress point from north of the I-75 interchange to NW 103rd Street;
- Widening of the southbound off-ramps to NW 103rd Street, including replacing the existing MSE walls; and
- Eliminating all of one (1) southbound SR 826 EL north of NW 103rd Street by converting it to a GP lane.

Predicted design year traffic noise levels for the Build Alternative were compared to the NAC and to noise levels predicted for the existing conditions, to assess potential noise impacts associated with the proposed project (see **Table 4-2**).

Build Alternative traffic noise levels at the residences are expected to range from approximately 53.7 to 79.0 dB(A) during the project's design year. Build Alternative traffic noise levels at the non-residential/special-use sites are expected to range from approximately 37.2 dB(A) inside the Palmetto General Hospital to 76.7 dB(A) at the Mater Academy Elementary School playground. The worst-case design year traffic noise levels with the Build Alternative are predicted to be no more than 1.9 dB(A) greater than existing levels and 1.4 greater than the design year No-Build noise levels.

4.5.1 US 27 to NW 103rd Street

Build Alternative traffic noise levels are predicted to approach or exceed the FHWA NAC - 67 dB(A) at 126 residences along this segment of SR 826. Build Alternative traffic noise levels at the non-residential noise sensitive sites along this project segment are predicted to approach or exceed the FHWA NAC – 67 dB(A) at the tables and playground at Florida National University, the playground at Mater Academy and the Don Quijote Plaza. Noise levels at the outdoor seating area at the Don Camaron Seafood restaurant are predicted to exceed the FHWA NAC for sensitive commercial sites [72 dB(A)]. No other sites are predicted to be impacted by Build Alternative traffic noise.

4.5.2 NW 103rd Street to NW 122nd Street

Build Alternative traffic noise levels are predicted to approach or exceed the FHWA NAC - 67 dB(A) at 282 residences along this segment of SR 826. No other sites are predicted to be impacted by Build Alternative traffic noise.

4.5.3 NW 122nd Street to I-75

Build Alternative traffic noise levels are predicted to approach or exceed the FHWA NAC - 67 dB(A) at eight (8) residences along this segment of SR 826. No other sites are predicted to be impacted by Build Alternative traffic noise.

4.5.4 I-75 to NW 154th Street

None of the noise sensitive sites along this project segment are predicted to be impacted by Build Alternative traffic noise.

4.6 Noise Impacts Summary

Build Alternative traffic noise levels are predicted to approach or exceed the FHWA NAC - 67 dB(A) at a total of 416 residences within the limits of the project. For the non-residential noise sensitive sites within the limits of the project, Build Alternative traffic noise levels are predicted to approach or exceed the correlating FHWA NAC at the five (5) sites at the following four (4) locations:

- Florida National University (2) – Outdoor tables and playground [NAC-67 dB(A)];
- Don Quijote Plaza – park [NAC-67 dB(A)];
- Mater Academy Elementary School – playground [NAC-67 dB(A)]; and
- Don Camaron Seafood – Restaurant Outdoor seating area [NAC-72 dB(A)].

Therefore, based on the FHWA and FDOT methodologies used to evaluate traffic noise levels in this study, modifications proposed with this project were determined to generate noise impacts at noise sensitive sites within the project study area and consideration of noise abatement is required to mitigate these impacts. An analysis of noise abatement measures considered for the sites that approach or exceed the NAC is presented in **Section 5**. Although a number of sites approach or exceed the NAC, the proposed improvements do not result in any substantial noise increases [i.e., greater than 15 dB(A) over existing levels].

5.0 NOISE BARRIER ANALYSIS

As described above in **Section 4.6**, predicted design year traffic noise levels with the Build Alternative will approach or exceed the NAC at 416 residences and five (5) non-residential special-use sites. The FDOT requires that the reasonableness and feasibility of noise abatement be considered when the NAC is approached or exceeded. Noise abatement was considered for impacted sites in the nine (9) areas identified in **Table 5-1** by Common Noise Environment (CNE). A CNE represents a group of impacted receptor sites that would benefit from the same noise barrier or barrier system (i.e., overlapping/continuous barriers) and are exposed to similar noise sources and levels, traffic volumes, traffic mix, speeds and topographic features. Generally, CNEs occur between two (2) secondary noise sources, such as interchanges, intersections and/or cross-roads or where defined by ground features such as canals. Noise abatement was considered for the impacted sites listed in **Section 4.6**.

Table 5 - 1: Locations Evaluated for Noise Barriers

Common Noise Environment Identification Number	General Location (Address or Cross Streets)	Relative Location	Representative Model Receptors	Type of Noise Sensitive Site (Noise Abatement Activity Category)	Number of Impacted Receptors	Noise Barrier Analysis Section in Report
CNE-FNU	Florida National University 4425 W 20th Avenue	East Side	FNU-Tables, FNU-PG	Outdoor Tables and Playground (Activity Category C)	2 SLUs	5.1
CNE-ToW	Towers of Westland Condominiums 4500 W 19th Court	East Side	ToW-R1 to ToW-R8	Multi-Family Residential (Activity Category B)	126	5.2
CNE-DQP	Don Quijote Plaza Northeast Corner of the SR 826/NW 103rd Street Interchange	East Side	DQPlaza	Park (Activity Category C)	1 SLU	5.3
CNE-DCS	Don Camaron Seafood 9491 NW 77th Court	West Side	DCS-Tables	Outdoor Seating Area (Activity Category E)	1 SLU	5.4
CNE-MPG	Mater Academy Elementary 7700 NW 98th Street	West Side	MPG	Playground (Activity Category C)	1 SLU	5.5
CNE-E1	Westland Eden, Meadowgreen, Palm West Gardens, Westland Gardens and Conquistador Park W 54th Street to W 60th Street	East Side	WE1, WE2, MG1, PWG1, PWG2, WG1 to WG5, CP1	Multi-Family Residential (Activity Category B)	150	5.6

Common Noise Environment Identification Number	General Location (Address or Cross Streets)	Relative Location	Representative Model Receptors	Type of Noise Sensitive Site (Noise Abatement Activity Category)	Number of Impacted Receptors	Noise Barrier Analysis Section in Report
CNE-W1	West Lake,Westland Village and Unnamed Townhomes W 53rd Street to W 58th Street	West Side	WB1 to WB7 CH1 to CH7	Multi-Family Residential (Activity Category B)	39	5.7
CNE-E2	Palmetto, Palmetto Gardens North, Villa Luisa, Andes, Palm Springs Lakes and Los Arboles W 60th Street to NW 122nd Street	East Side	PGN1, VL1, PSL1 to PSL4, LA1 to LA4	Multi-Family Residential (Activity Category B)	93	5.8
CNE-PRV	Poinciana Royale Villas W 75th Street to W 76th Street	West Side	PRV1, PRV2	Multi-Family Residential (Activity Category B)	8	5.9

A wide range of factors are used to evaluate the feasibility and reasonableness of noise abatement measures. Feasibility primarily concerns the ability to reduce noise levels by at least five dB(A) at the impacted receptor sites using standard construction methods and techniques. Engineering considerations typically assessed during the feasibility analysis include access, drainage, utilities, safety and maintenance.

The most common and effective noise abatement measure for projects such as this is construction of a noise barrier as close as possible to the impacted sites. Noise barriers reduce noise by blocking the sound path between a roadway and a noise sensitive area. To be effective, noise barriers must be long, continuous, and have sufficient height to block the path between the noise source and the receptor site. The Peters Pike Canal and/or the frontage roads are located in the intervening space between SR 826 and the nearest noise sensitive sites. As such, there is insufficient right-of-way available for the construction of ground-mounted noise barriers outside of clear-recovery zone of SR 826. Therefore, the most likely location for construction of noise barriers on this project is along the roadway shoulder, much of which is located on existing walls/structures that are not being modified with this project. The FDOT limits noise barrier located on the roadway shoulder to a maximum height of 8 feet on structures such as MSE wall and bridges and 14 feet on fill.

Reasonableness implies that common sense and good judgment were applied in a decision related to noise abatement. A reasonableness analysis includes consideration of the cost of abatement, the amount of noise abatement benefit, and the consideration of the viewpoints of the impacted and benefited property owners and residents. The FDOT's current Statewide average noise barrier unit cost is $30 per square-foot (SF). To be deemed reasonable, a noise barrier must, at a minimum, meet two important FDOT criteria:

- The estimated construction cost cannot exceed the FDOT's reasonable cost criteria of $42,000 per benefited receptor site; and,
- According to the FDOT's noise reduction reasonableness criteria, the noise barrier must reduce noise levels by at least seven dB(A) at one or more impacted receptor sites.

As part of the reasonableness cost analysis, various conceptual noise barrier designs were evaluated for each impacted area to determine the most effective location, length and height that will achieve the desired noise level reduction at reasonable cost. In addition, the primary method for determining the cost of noise abatement involves a review of the cost per benefited receptor site for the construction of a noise barrier benefiting a single location or common noise environment (e.g., a subdivision or contiguous impact area)

In determining cost reasonableness of the noise barriers, a review was performed to determine if the noise barrier could be constructed using standard construction measures and techniques. This review also considered if any necessary alternative construction methods and techniques would increase the construction costs of the noise barrier, or result in impacts to utilities, right-of-way, roadway safety or other areas of concern. In accordance with Part 2, Chapter 18 – *Highway Traffic Noise* of the FDOT PD&E Manual, a detailed cost-estimate was prepared for the most feasible design concepts for CNE-ToW and CNE-E1 in order to account for the costs necessary to accommodate their construction and to evaluate cost reasonableness.

The cost reasonableness of the noise barriers considered for the impacted non-residential/special land use (SLU) sites was assessed using FDOT's "*A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations*" (July 22, 2009).

5.1 CNE-FNU – (Florida National University Tables and Playground)

This CNE is located east of SR 826 between W 42nd Place and W 44th Place and encompasses an outdoor area on the north side of the Florida National University campus that includes tables and a playground. These sites are represented by model receptors FNU-Tables and FNU-PG as shown on **Sheet 1** in **Appendix C**. Design year traffic noise levels at these sites are predicted to range from 68.1 to 69.7 dB(A) with the planned improvements, up to 0.8 dB(A) greater than existing levels. Design year traffic noise levels at both sites are predicted to be greater than the FHWA NAC for sites such as these [Activity Class C - 67 dB(A)].

SR 826 is located primarily at-grade near Florida National University. However, the grade increases north of the school as the expressway crosses NW 103rd Street. Due to the location of the adjacent East Frontage Road/W 20th Avenue, the only noise abatement alternative within FDOT right-of-way for this area would be construction of a noise barrier along the shoulder of northbound SR 826 and the northbound off-ramp to NW 103rd Street between mainline Sta. 510+80 and off-ramp Sta. 5522+85 (**see Sheet 1 in Appendix C**). The results of the noise barrier analysis for CNE-FNU are presented in **Table 5-2**. A combination of ground-mounted and structure-mounted noise barrier would be necessary due to the elevation of the roadway north of the college. A 1,200-foot long noise barrier along this section of the project would include a 610-foot long segment between mainline Sta. 510+80 and 516+90 that is limited to a height of no more than 14 feet. The remaining 590-foot long segment between Sta. 516+90 and off-ramp Sta.

5522+85 would be located on-structure and is limited to a height of no more than eight feet. The estimated cost of this noise barrier, based on FDOT's $30/SF unit cost estimate, is $397,800 overall.

Traffic noise levels with this noise barrier configuration are predicted to range from 63.2 to 63.4 dB(A). Due to the height limitations of a noise barrier at this location and traffic on the adjacent frontage road, the maximum possible noise level reduction at the impacted sites is predicted to be 6.4 dB(A). No other solutions were found to improve the predicted noise level reduction to at least 7.0 dB(A).

A noise barrier for the outdoor areas at Florida International University is not considered reasonable according to FDOT criteria and is not recommended for further consideration since it was not possible to meet FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one (1) impacted receptor site.

5.2 CNE-ToW - (Towers of Westland)

This CNE is located east of SR 826 between W 44th Place and NW 103rd Street and encompasses outdoor areas at the Towers of Westland Condominiums. This community includes several five-story condominium buildings located adjacent to SR 826, where exterior noise sensitive areas include patios or balconies attached to the individual units. These sites are represented by model receptors ToW-R1 through ToW-R8 as shown on **Sheets 1 and 2** in **Appendix C**. Design year traffic noise levels at the Towers of Westland receptor sites are predicted to range from 64.4 to 79.0 dB(A) with the planned improvements, up to 1.9 dB(A) greater than existing levels. Design year traffic noise levels at 126 residences are predicted to be greater than the FHWA NAC for residences [Activity Class B - 67 dB(A)].

The grade of SR 826 near the Towers of Westland condominiums increases from at-grade as the expressway crosses NW 103rd Street to the north. SR 826 and the northbound off-ramp are being widened with the project to correct the existing substandard inside and outside shoulder widths. Due to the elevation difference between the northbound off-ramp to NW 103rd Street and the adjacent East Frontage Road/W 20th Avenue, the only noise abatement alternative within FDOT right-of-way for this area would be construction of a noise barrier along the shoulder of northbound SR 826 and the northbound off-ramp. However, much of the northbound off-ramp to NW 103rd Street is located on retaining wall, which is not being modified other than the top of the wall being adjusted to account for a slight change in profile between Sta. 5520+26 and 5526+76. The results of the noise barrier analysis for CNE-ToW are summarized in **Table 5-3**. A combination of ground-mounted and structure-mounted noise barrier would be necessary due to the elevation of the roadway near the condominiums. The most feasible and reasonable noise barrier alternative for this community is ToW-CD4 located along the northbound shoulder between mainline Sta. 511+80 and off-ramp Sta. 5523+90 (See **Sheets 1 and 2** in **Appendix C**). This 1,215-foot long noise barrier would include a 510-foot long segment between mainline Sta. 511+80 and 516+90 that is limited to a height of no more than 14 feet and a 705-foot long segment between Sta. 516+90 and off-ramp Sta. 5523+90 that would be located on-structure and is limited to a height of no more than eight (8) feet.

Table 5 - 2: Noise Barrier Analysis for Common Noise Environment-FNU

General Location (Cross Streets or Address)	Noise Barrier Conceptual Design	Noise Barrier Type	Height (feet)	Length (feet)	Limits (Begin/ End Station Number)	Number of Impacted Receptors Sites	Average (Maximum) Noise Reduction for Impacted Receptor Sites dB(A)	Number of Impacted/ Benefited Receptor Sites	Number of Not Impacted/ Benefited Receptor Sites	Total Number of Benefited Receptor Sites	Average (Maximum) Noise Reduction for all Benefited Receptor Sites dB(A)	Estimated Overall Cost ($30 per square foot)	Estimated Cost/Site Benefited	Comments
CNE-FNU Florida National University Picnic Tables and Playground East Side – W 42nd Place to W 44th Place	FNU-CD1	Shoulder-Mounted	14	610	510+80 to 516+90	2 SLU	5.7 (6.4)	1 SLU	0 SLU	1 SLU	6.4 (6.4)	$397,800	N/A	**Not Recommended** – Does not achieve FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one impacted receptor site. Also, based on needed usage, cost exceeds FDOT's Noise Barrier Cost Reasonable Criteria for Special Use Sites.
		Structure-Mounted	8	590	516+90 to 5522+85									

Notes: N/A = Not Applicable

Table 5 - 3: Noise Barrier Analysis for Common Noise Environment-TOW

General Location (Cross Streets or Address)	Noise Barrier Conceptual Design	Noise Barrier Type	Height (feet)	Length (feet)	Limits (Begin/ End Station Number)	Number of Impacted Receptors Sites	Average (Maximum) Noise Reduction for Impacted Receptor Sites dB(A)	Number of Impacted/ Benefited Receptor Sites	Number of Not Impacted/ Benefited Receptor Sites	Total Number of Benefited Receptor Sites	Average (Maximum) Noise Reduction for all Benefited Receptor Sites dB(A)	Estimated Overall Cost (Based on $30 per square foot unless otherwise noted)	Estimated Cost/Site Benefited	Comments
CNE-ToW Tower of Westland Patios and Balconies East Side – W44th Place and NW 103rd Street	ToW-CD1	Shoulder/ Structure-Mounted	8	1,615	511+80 to 5527+85	126	2.2 (7.8)	6	0	6	6.5 (7.8)	$477,600	$79,600	**Not Recommended** – Does not achieve FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one impacted receptor site.
		Structure-Mounted	8	375	523+15 to 526+90									
	ToW-CD2	Shoulder-Mounted	14	510	511+80 to 516+90	126	3.2 (8.0)	30	2	32	6.1 (8.0)	N/A*	N/A*	**Not Recommended** – This design concept adds a 14-foot tall shoulder-mounted noise barrier segment to the southern portion of the noise barrier along the SR 826 mainline/off-ramp. Also adds a structure-mounted segment on the overpass across NW 103rd Street. Achieves FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one impacted receptor site. However, based on the detailed cost estimate prepared for ToW-CD4 and based on consultation with the FDOT District 6 Noise Specialist, this design concept would also not meet FDOT's Noise Barrier Cost Reasonableness Criteria.
		Structure-Mounted	8	705	516+90 to 5523+90									
		Structure-Mounted	8	475	523+15 to 527+90									
	ToW-CD3	Shoulder-Mounted	14	310	513+80 to 516+90	126	2.8 (7.9)	21	0	21	5.7 (7.9)	N/A*	N/A*	**Not Recommended** – 200 foot shorter version of TOW-CD2 to minimize visual impacts to FNU. Benefits nine fewer impacted sites. Achieves FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one impacted receptor site. However, based on the detailed cost estimate prepared for ToW-CD4 and based on consultation with the FDOT District 6 Noise Specialist, this design concept would also not meet FDOT's Noise Barrier Cost Reasonableness Criteria.
		Structure-Mounted	8	705	516+90 to 5523+90									
		Structure-Mounted	8	475	523+15 to 527+90									
	ToW-CD4	Shoulder-Mounted	14	510	511+80 to 516+90	126	3.0 (7.8)	28	2	30	6.2 (7.8)	$1,419,000*	$47,300	**Not Recommended** – Deletes the structure-mounted noise barrier on shoulder of the overpass across NW 103rd Street from TOW-CD2. Lower overall cost and only results in two fewer benefited impacted sites. Achieves FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one impacted receptor site. A detailed cost estimate has been prepared for this noise barrier design concept to account for non-standard, noise barrier-specific costs such as modifying the retaining wall, drainage, utilities, signing, ITS and lighting that are required in order to construct this noise barrier. This cost estimate can be found in **Appendix D**.
		Structure-Mounted	8	705	516+90 to 5523+90									

Notes: N/A* = Not applicable. See detailed cost estimate discussion in the comments.

Build Alternative noise levels with this noise barrier design concept are predicted to range from 58.7 to 79.0 dB(A). This design concept is predicted to reduce noise levels at the impacted sites by an average of 3.0 dB(A) and a maximum of 7.9 dB(A) compared to the predicted noise levels without any noise abatement. Of the 126 impacted residences, 28 mostly first and second-floor residences were predicted to experience a noise level reduction of at least 5.0 dB(A) and would thus be benefited by this noise barrier design concept. Two (2) non-impacted residences were predicted to be benefited incidentally. A detailed cost estimate was prepared for this noise barrier design concept to account for non-standard, noise barrier-specific costs such as modifying the retaining wall, drainage, utilities, signing, ITS and lighting that are required in order to construct this noise barrier. This cost estimate can be found in **Appendix D**. This noise barrier is expected to cost $1,419,000 overall and $47,300 per benefited site. Although this noise barrier will attain the FDOT's noise reduction design requirement of 7 dB(A) at one or more sites; its cost per benefited site exceeds the FDOT's noise barrier cost criteria ($42,000 per benefited site). Extending this noise barrier southward did not benefit any additional impacted sites and extending it northward would encroach upon the required 15-foot offset for a Florida Gas Transmission (FGT) 24-inch gas line located just outside of eastern FDOT right-of-way line.

A noise barrier for the impacted sites represented by CNE-TOW is not considered reasonable according to FDOT criteria and is not recommended for further consideration since the cost per benefited site of this noise barrier exceeds the FDOT's noise barrier cost criteria.

5.3 CNE-DQP - (Don Quijote Plaza)

This CNE is located at the southeast corner of the SR 826/NW 103rd Street interchange and encompasses a park that includes benches surrounding an art display. This site is represented by model receptor DQPlaza as shown on **Sheet 2** in **Appendix C**. The design year traffic noise level at this site is predicted to be 71.0 dB(A) with the planned improvements, 1.0 dB(A) greater than the existing level. The design year traffic noise level at this site is predicted to be greater than the FHWA NAC for sites such as this [Activity Class C - 67 dB(A)].

Near this park, SR 826 is located well above-grade as it crosses the at-grade NW 103rd Street. Due to traffic noise from the surface streets, the only noise abatement alternative within FDOT right-of-way for this area is construction of a ground-mounted noise barrier along the shoulder of the northbound off-ramp and along eastbound NW 103rd Street. (See **Sheet 2** in **Appendix C**). However, a noise barrier at this location would encroach upon the required 15-foot offset for the FGT's 24-inch gas line located just outside of eastern FDOT right-of-way line. Therefore, construction of a noise barrier for the outdoor area at the Don Quijote Plaza is not feasible and it is not recommended for further consideration.

5.4 CNE-DCS – (Don Camaron Seafood)

This CNE is located along the west side of SR 826 at NW 95th Street and encompasses an outdoor seating area for the restaurant. This site is represented by model receptor DCS-Tables as shown on **Sheet 1** in **Appendix C**. The design year traffic noise level at this site is predicted to be 73.5 dB(A) with the planned improvements, 1.4 dB(A) greater than the existing level. The design year traffic

noise level at this site is predicted to be greater than the FHWA NAC for sensitive commercial sites such as this [Activity Class E - 72 dB(A)].

SR 826 is located at-grade near this restaurant. Due to the location of the adjacent frontage road (NW 77th Avenue), the only noise abatement alternative for this area would be construction of a noise barrier along the shoulder of the southbound lanes of SR 826 and the off-ramp to US 27 between Sta. 500+80 and 509+80 (see **Sheet 1** in **Appendix C**). The results of the noise barrier analysis for CNE-DCS are presented in **Table 5-4**. This 900-foot long shoulder-mounted noise barrier would be limited to a height of no more than 14 feet. The estimated cost of this noise barrier, based on FDOT's $30/SF unit cost estimate, is $378,000 overall. The design year traffic noise level with this noise barrier is predicted to be 66.4 dB(A), representing a noise level reduction of 7.1 dB(A).

The results of the FDOT's Special Use analysis for this site are presented in **Table 5-5**. Given a noise barrier 900 feet long and 14 feet tall, at least 531 people per day (each spending at least one hour using the restaurant's outdoor seating area) would be necessary to meet FDOT's cost reasonableness requirements for such sites. The outdoor seating area at this restaurant includes approximately 85 seats. According to a restaurant representative contacted during the previous FDOT project along this corridor, the outdoor seating area is used infrequently, primarily for big sporting events. Based on this information, usage of this outdoor seating area is well below the level necessary to meet the cost criterion for a noise barrier at this location. Therefore, a noise barrier for the impacted areas of the outdoor seating area represented by CNE-DCS is not considered cost reasonable according to FDOT criteria and is not recommended for further consideration.

5.5 CNE-MPG – (Mater Academy Elementary Playground)

This CNE is located along the west side of SR 826 at NW 98th Street and encompasses a playground at a private elementary school. This site is represented by model receptor MPG as shown on **Sheet 1** in **Appendix C**. The design year traffic noise level at this site is predicted to be 76.7 dB(A) with the planned improvements, 1.0 dB(A) greater than the existing level. The design year traffic noise level at this site is predicted to be greater than the FHWA NAC for playgrounds such as this [Activity Class C - 67 dB(A)].

SR 826 is generally located at-grade near this school; however, the grade increases to above-grade as the expressway crosses NW 103rd Street to the north. Due to the location of the adjacent frontage road (NW 77th Avenue), the only feasible noise abatement alternative for this area is construction of a noise barrier along the shoulder of the on-ramp from eastbound NW 103rd Street and the southbound mainline lanes of SR 826 and between Sta. 508+80 and 515+80 (see **Sheet 1** in **Appendix C**). The results of the noise barrier analysis for CNE-MPG are presented in **Table 5-6**. This 700-foot long shoulder-mounted noise barrier would be limited to a height of no more than 14 feet. The design year traffic noise level with this noise barrier configuration is predicted to be 69.7 dB(A), representing a noise level reduction of 7.0 dB(A). The estimated cost of this noise barrier is $294,000 overall.

Table 5 - 4: Noise Barrier Analysis for Common Noise Environment-DCS

General Location (Cross Streets or Address)	Noise Barrier Conceptual Design	Noise Barrier Type	Height (feet)	Length (feet)	Limits (Begin/ End Station Number)	Number of Impacted Receptors Sites	Average (Maximum) Noise Reduction for Impacted Receptor Sites dB(A)	Number of Impacted/ Benefited Receptor Sites	Number of Not Impacted/ Benefited Receptor Sites	Total Number of Benefited Receptor Sites	Average (Maximum) Noise Reduction for all Benefited Receptor Sites dB(A)	Estimated Overall Cost ($30 per square foot)	Estimated Cost/Site Benefited	Comments
CNE-DCS Don Camaron Seafood Outdoor seating area West Side – NW 95th Street	DCS-CD1	Shoulder-Mounted	8	1,100	499+80 to 510+80	1 SLU	4.4 (4.4)	0 SLU	0 SLU	0 SLU	N/A	$264,000	N/A	**Not Recommended** – Does not achieve 7.0 dB(A) at any of the benefited sites.
	DCS-CD2	Shoulder-Mounted	14	900	500+80 to 509+80	1 SLU	7.1 (7.1)	1 SLU	0 SLU	1 SLU	7.1 (7.1)	$378,000	See Table 5-5	**Not Recommended** – Based on needed usage, cost exceeds FDOT's Noise Barrier Cost Reasonable Criteria for Special Use Sites.

Table 5 - 5: Special Use Site Noise Barrier Analysis for Common Noise Environment-DCS

Item	Criteria	Input	Units
		DCS-CD2	
1	Enter Length of Proposed Barrier	900	feet
2	Enter Height of Proposed Barrier	14	feet
3	Multiply item 1 by item 2	12,600	$feet^2$
4	Enter the average amount of time that a person stays at the site per visit	1	hours
5	Enter the average number of people that use this site per day that will receive at least 5 dB(A) benefit from abatement at the site	531	persons
6	Multiply item 4 by item 5	531	person-hours
7	Divide item 3 by item 6	23.71	$feet^2$/person-hours
8	Multiply item 7 by $42,000	$995,935	$/person-hours/$ft^2$
9	Does item 8 exceed the "abatement cost factor" of: $995,935/person-hour/$ft^2$?	N/A	Yes/No
10	If item 9 is no, abatement is reasonable.	N/A	
11	If item 9 is yes, abatement is not reasonable.	N/A	

The results of the FDOT's Special Use analysis for this site are presented in **Table 5-7**. Given a noise barrier 700 feet long and 14 feet tall, at least 414 people per day (each spending at least one hour using the school's playground) would be necessary to meet FDOT's cost reasonableness requirements for such sites. Based on this information, and the small size of the playground, usage of this playground is expected to be well below the level necessary to meet the cost criterion for construction of a noise barrier at this location. Therefore, a noise barrier for the impacted areas of the playground represented by CNE-MPG is not considered cost reasonable according to FDOT criteria and is not recommended for further consideration.

5.6 CNE-E1 – (Westland Eden, Meadowgreen, Palm West Gardens, Westland Gardens and Conquistador Park)

This CNE is located east of SR 826 from south of W 54th Street to W 60th Street and encompasses outdoor areas at the Westland Eden, Meadowgreen, Palm West Gardens, Westland Gardens and Conquistador Park communities. These communities include two (2) to four-story condominiums, many of which include first-floor parking. Exterior noise sensitive areas in these communities include patios or balconies attached to the individual units. These sites are represented by model receptors WE1, WE2, MG1, PWG1, PWG2, WG1 through WG5 and CP1 as shown on **Sheet 3** in **Appendix C**. Design year traffic noise levels in this CNE are predicted to range from 65.1 to 76.8 dB(A) with the planned improvements, up to 1.1 dB(A) greater than existing levels. The design year traffic noise levels at 150 residences are predicted to be greater than the FHWA NAC for residences [Activity Class B - 67 dB(A)].

Along the limits of this CNE, SR 826 is at-grade from south of W 54th Street to just north of W 56th Street. North of here, the grade of SR 826 increases as the expressway crosses W 60th Street. Due to the location of the adjacent frontage road, the only feasible noise abatement alternative within FDOT right-of-way for this area is construction of an 8 to 14-foot tall ground and structure-mounted noise barrier along the shoulder of the northbound lanes of SR 826. The results of the noise barrier analysis for CNE-E1 are summarized in **Table 5-8**. A combination of ground-mounted and structure-mounted noise barrier would be necessary due to the elevation of the roadway near the northern terminus of the noise barrier. The most feasible and reasonable noise barrier alternative for this community is E1-CD3 located along the northbound shoulder between Sta. 543+80 and 564+80 (See **Sheet 3** in **Appendix C**). This 2,100-foot long noise barrier would be limited to a height of no more than 14 feet between Sta. 543+80 and 556+80 due to its location along the roadway shoulder and limited to no more than 8 feet tall north of this.

Table 5 - 6: Noise Barrier Analysis for Common Noise Environment-MPG

General Location (Cross Streets or Address)	Noise Barrier Conceptual Design	Noise Barrier Type	Height (feet)	Length (feet)	Limits (Begin/ End Station Number)	Number of Impacted Receptors Sites	Average (Maximum) Noise Reduction for Impacted Receptor Sites dB(A)	Number of Impacted/ Benefited Receptor Sites	Number of Not Impacted/ Benefited Receptor Sites	Total Number of Benefited Receptor Sites	Average (Maximum) Noise Reduction for all Benefited Receptor Sites dB(A)	Estimated Overall Cost ($30 per square foot)	Estimated Cost/Site Benefited	Comments
CNE-MPG Mater Academy Elementary Playground West Side – NW 98th Street	MPG-CD1	Shoulder-Mounted	8	1,100	505+80 to 516+80	1 SLU	4.7 (4.7)	0 SLU	0 SLU	0 SLU	N/A	$264,000	N/A	**Not Recommended** – Does not achieve 7.0 dB(A) at any of the benefited sites.
	MPG-CD2	Shoulder-Mounted	14	700	508+80 to 515+80	1 SLU	7.0 (7.0)	1 SLU	0 SLU	1 SLU	7.0 (7.0)	$294,000	See Table 5-7	**Not Recommended** – Based on needed usage, cost exceeds FDOT's Noise Barrier Cost Reasonable Criteria for Special Use Sites.

Table 5 - 7: Special Use Site Noise Barrier Analysis for Common Noise Environment-MPG

Item	Criteria	Input	Units
		MPG-CD2	
1	Enter Length of Proposed Barrier	700	feet
2	Enter Height of Proposed Barrier	14	feet
3	Multiply item 1 by item 2	9,800	$feet^2$
4	Enter the average amount of time that a person stays at the site per visit	1	hours
5	Enter the average number of people that use this site per day that will receive at least 5 dB(A) benefit from abatement at the site	414	persons
6	Multiply item 4 by item 5	413	person-hours
7	Divide item 3 by item 6	23.71	$feet^2$/person-hours
8	Multiply item 7 by $42,000	$995,935	$/person-hours/$ft^2$
9	Does item 8 exceed the "abatement cost factor" of: $995,935/person-hour/$ft^2$?	N/A	Yes/No
10	If item 9 is no, abatement is reasonable.	N/A	
11	If item 9 is yes, abatement is not reasonable.	N/A	

Table 5 - 8: Noise Barrier Analysis for Common Noise Environment-E1

General Location (Cross Streets or Address)	Noise Barrier Conceptual Design	Noise Barrier Type	Height (feet)	Length (feet)	Limits (Begin/ End Station Number)	Number of Impacted Receptors Sites	Average (Maximum) Noise Reduction for Impacted Receptor Sites dB(A)	Number of Impacted/ Benefited Receptor Sites	Number of Not Impacted/ Benefited Receptor Sites	Total Number of Benefited Receptor Sites	Average (Maximum) Noise Reduction for all Benefited Receptor Sites dB(A)	Estimated Overall Cost (Based on $30 per square foot unless otherwise noted)	Estimated Cost/Site Benefited	Comments
CNE-E1 Westland Eden, Meadowgreen, Palm West Gardens, Westland Gardens and Conquistador Park Patios and Balconies East Side – W 54th Street to W 60th Street	E1-CD1	Shoulder-Mounted	8	1,900	542+80 to 561+80	150	1.0 (4.1)	0	0	0	N/A	$456,600	N/A	**Not Recommended** – Does not achieve FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one impacted receptor site.
	E1-CD2	Shoulder-Mounted	14	1,300	543+80 to 556+80	150	2.5 (7.8)	28	7	35	6.6 (8.1)	N/A*	N/A*	**Not Recommended** – 14-foot tall shoulder-mounted noise barrier. Achieves FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one impacted receptor site. However, based on the detailed cost estimate prepared for E1-CD3, and based on consultation with the FDOT District 6 Noise Specialist, this design concept would also not meet FDOT's Noise Barrier Cost Reasonableness Criteria.
	E1-CD3	Shoulder-Mounted	14	1,300	543+80 to 556+80	150	3.6 (7.8)	36	7	43	6.5 (8.1)	$2,211,000*	$51,419	**Not Recommended** – Adds an 8-foot tall structure-mounted noise barrier segment on shoulder of the overpass across W 60th Street. Benefits eight additional impacted sites. Achieves FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one impacted receptor site. A detailed cost estimate has been prepared for this noise barrier design concept to account for non-standard, noise barrier-specific costs such as modifying the retaining wall, drainage, utilities, signing, ITS and lighting that are required in order to construct this noise barrier. This cost estimate can be found in **Appendix D**.
		Structure-Mounted	8	800	556+80 to 564+80									

Notes: N/A* = Not Applicable. See detailed cost estimate discussion in the comments.

Build Alternative noise levels with this noise barrier design concept are predicted to range from 57.3 to 76.2 dB(A). This design concept is predicted to reduce noise levels at the impacted sites by an average of 3.6 dB(A) and a maximum of 7.8 dB(A) compared to the predicted noise levels without any noise abatement. Of the 150 impacted residences, 36 mostly first and second-floor residences were predicted to experience a noise level reduction of at least 5.0 dB(A) and would thus be benefited by this noise barrier design concept. Seven (7) non-impacted residences were predicted to be benefited incidentally. A detailed cost estimate was prepared for this noise barrier design concept to account for non-standard, noise barrier-specific costs such as modifying the retaining wall, drainage, utilities, signing, ITS and lighting that are required in order to construct this noise barrier. This cost estimate can be found in **Appendix D** (note that this design concept is referred to as E1-CD4 in this memo). This noise barrier is expected to cost $2,211,000 overall and $51,419 per benefited site. Although this noise barrier will attain the FDOT's noise reduction design requirement of 7 dB(A) at one or more sites; its cost per benefited site exceeds the FDOT's noise barrier cost criteria ($42,000 per benefited site). Extending this noise barrier southward and northward did not benefit any additional impacted sites.

A noise barrier for the impacted sites represented by CNE-E1 is not considered reasonable according to FDOT criteria and is not recommended for further consideration since the cost per benefited site of this noise barrier exceeds the FDOT's noise barrier cost criteria.

5.7 CNE-W1 – (West Lake, Westland Village and Unnamed Townhomes)

This CNE is located west of SR 826 between W 53rd Street to W 58th Street and encompasses outdoor areas at the West Lake and Westland Village communities and an unnamed community of "cluster homes" to the north. The West Lake and Westland Village communities include two-story townhomes; the "cluster homes" to the north are single-story. Exterior noise sensitive areas in these communities include ground-level patios attached to the individual units. These sites are represented by model receptors WB1 through WB7 and CH1 through CH7 as shown on **Sheet 3** in **Appendix C**. Design year traffic noise levels in this CNE are predicted to range from 57.6 to 73.5 dB(A) with the planned improvements, up to 1.5 dB(A) greater than existing levels. The design year traffic noise levels at 39 residences are predicted to be greater than the FHWA NAC for residences [Activity Class B - 67 dB(A)].

Along the limits of this CNE, SR 826 is at-grade south of W 56th Street and above-grade north from here to W 60th Street. Also, all of this segment is located adjacent to the Peters Pike Canal and the outside edge of the southbound lanes is located on structure across the limits of this CNE. Due to the location adjacent to the canal, the only noise abatement alternative within FDOT right-of-way for this area is construction of a structure-mounted noise barrier along the shoulder of the southbound lanes of SR 826 and the off-ramp to NW 103rd Street. The results of the noise barrier analysis for CNE-E1 are summarized in **Table 5-9**. This 2,690-foot long noise barrier would be located between offramp station Sta. 6535+80 and mainline Sta. 566+80 (See **Sheets 3 and 4** in **Appendix C**) and would be limited to a height of no more than 8 feet tall.

Build Alternative noise levels with this noise barrier design concept are predicted to range from 56.5 to 73.5 dB(A). This design concept is predicted to reduce noise levels at the impacted sites by an average of 3.5 dB(A) and a maximum of 4.6 dB(A) compared to the predicted noise levels

without any noise abatement. Due to the 8-foot tall height restriction for noise barriers located on structure, none of the 39 impacted residences were predicted to experience a noise level reduction of at least 5.0 dB(A). Thus, this noise barrier will not attain the FDOT's noise reduction design requirement of 7 dB(A) at one (1) or more sites.

A noise barrier for the impacted sites represented by CNE-W1 is not considered reasonable according to FDOT criteria and is not recommended for further consideration since it was not possible to meet FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one (1) impacted receptor site.

Table 5 - 9: Noise Barrier Analysis for Common Noise Environment-W1

General Location (Cross Streets or Address)	Noise Barrier Conceptual Design	Noise Barrier Type	Height (feet)	Length (feet)	Limits (Begin/ End Station Number)	Number of Impacted Receptors Sites	Average (Maximum) Noise Reduction for Impacted Receptor Sites dB(A)	Number of Impacted/ Benefited Receptor Sites	Number of Not Impacted/ Benefited Receptor Sites	Total Number of Benefited Receptor Sites	Average (Maximum) Noise Reduction for all Benefited Receptor Sites dB(A)	Estimated Overall Cost ($30 per square foot)	Estimated Cost/Site Benefited	Comments
CNE-W1 West Lake, Westland Village and Unnamed Townhomes Patios West Side – W53rd Street to W 58th Street	W1-CD1	Shoulder-Mounted	8	2,690	6535+80 to 566+80	39	3.5 (4.6)	0	0	0	N/A	$645,600	N/A	**Not Recommended** – Does not achieve 7.0 dB(A) at any of the benefited sites.

Table 5 - 10: Noise Barrier Analysis for Common Noise Environment-E2

General Location (Cross Streets or Address)	Noise Barrier Conceptual Design	Noise Barrier Type	Height (feet)	Length (feet)	Limits (Begin/ End Station Number)	Number of Impacted Receptors Sites	Average (Maximum) Noise Reduction for Impacted Receptor Sites dB(A)	Number of Impacted/ Benefited Receptor Sites	Number of Not Impacted/ Benefited Receptor Sites	Total Number of Benefited Receptor Sites	Average (Maximum) Noise Reduction for all Benefited Receptor Sites dB(A)	Estimated Overall Cost ($30 per square foot)	Estimated Cost/Site Benefited	Comments
CNE-E2 The Palmetto, Palmetto Gardens North, Villa Luisa, Andes, Palm Springs Lakes and Los Arboles. Patios and Balconies East Side – W 60th Street to NW 122nd Street	E2-CD1	Structure-Mounted	8	2,400	568+80 to End of NB Off-Ramp to NW 122nd Street	93	2.5 (4.7)	0	0	0	N/A	$576,000	N/A	**Not Recommended** – Does not achieve 7.0 dB(A) at any of the benefited sites.

Table 5 - 11: Noise Barrier Analysis for Common Noise Environment-PRV

General Location (Cross Streets or Address)	Noise Barrier Conceptual Design	Noise Barrier Type	Height (feet)	Length (feet)	Limits (Begin/ End Station Number)	Number of Impacted Receptors Sites	Average (Maximum) Noise Reduction for Impacted Receptor Sites dB(A)	Number of Impacted/ Benefited Receptor Sites	Number of Not Impacted/ Benefited Receptor Sites	Total Number of Benefited Receptor Sites	Average (Maximum) Noise Reduction for all Benefited Receptor Sites dB(A)	Estimated Overall Cost ($30 per square foot)	Estimated Cost/Site Benefited	Comments
CNE-PRV Poinciana Royale Villas Patios West Side – W 75th Street to W 76th Street	PRV-CD1	Structure-Mounted	8	1,300	611+85 to 624+85	8	3.8 (3.9)	0	0	0	N/A	$312,000	N/A	**Not Recommended** – Does not achieve 7.0 dB(A) at any of the benefited sites.

5.8 CNE-E2 – (The Palmetto, Palmetto Gardens North, Villa Luisa, Andes, Palm Springs Lakes and Los Arboles)

This CNE is located east of SR 826 from north of W 60th Street to NW 122nd Street and encompasses outdoor areas at the Palmetto, Palmetto Gardens, Villa Luisa, Andes, Palm Springs Lakes and Los Arboles communities. The condominium communities include three (3) to four (4) story condominium buildings, many of which have first-floor parking. Palm Springs Lakes is a single-family home community located along W 63rd and W 64th Streets. Exterior noise sensitive areas in these communities include patios or balconies attached to the individual units and the yards at the single-family homes. These sites are represented by model receptors PGN1, VL1, PSL1 through PSL4 and LA1 through LA4 as shown on **Sheet 4** in **Appendix C**. Design year traffic noise levels in this CNE are predicted to range from 60.7 to 77.6 dB(A) with the planned improvements, up to 1.0 dB(A) greater than existing levels. The design year traffic noise levels at 93 residences are predicted to be greater than the FHWA NAC for residences [Activity Class B - 67 dB(A)].

SR 826 is located above-grade along the entire segment between W 60th Street and NW 122nd Street. Due to the location of the adjacent frontage road, the only feasible noise abatement alternative within FDOT right-of-way for this area is construction of an 8-foot tall structure-mounted noise barrier along the shoulder of the northbound lanes of SR 826. The results of the noise barrier analysis for CNE-E2 are summarized in **Table 5-10**. This noise barrier would begin at mainline Sta. 568+80 and extend 2,400 feet northward to the end of the northbound off-ramp to NW 122nd Street (See **Sheets 4 and 5** in **Appendix C**). Since it would be located entirely on structure (MSE wall), it would be limited to a height of no more than 8 feet tall.

Build Alternative noise levels with this noise barrier design concept are predicted to range from 60.7 to 77.6 dB(A). This design concept is predicted to reduce noise levels at the impacted sites by an average of 2.5 dB(A) and a maximum of 4.7 dB(A) compared to the predicted noise levels without any noise abatement. Due to the 8-foot tall height restriction for noise barriers located on structure, none of the 89 impacted residences were predicted to experience a noise level reduction of at least 5.0 dB(A). Thus, this noise barrier will not attain the FDOT's noise reduction design requirement of 7 dB(A) at one or more sites.

A noise barrier for the impacted sites represented by CNE-E2 is not considered reasonable according to FDOT criteria and is not recommended for further consideration since it was not possible to meet FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one (1) impacted receptor site.

5.9 CNE-PRV – (Poinciana Royal Villas)

This CNE is located west of SR 826 between W 75th Street to W 76th Street and encompasses outdoor areas at the Poinciana Royal Villas. Exterior noise sensitive areas in this community include ground-level patios attached to the individual units. These sites are represented by model receptors PRV1 and PRV2 as shown on **Sheet 6** in **Appendix C**. Design year traffic noise levels in this CNE are predicted to be 71.2 dB(A) with the planned improvements, up to 1.0 dB(A) greater

than existing levels. The design year traffic noise levels at eight (8) residences are predicted to be greater than the FHWA NAC for residences [Activity Class B - 67 dB(A)].

Along the limits of this CNE, SR 826 is located at-grade adjacent to the Peters Pike Canal. The outside edge of the southbound lanes is located on structure across this CNE. Due to the location of the adjacent to the canal, the only noise abatement alternative within FDOT right-of-way for this area is construction of a structure-mounted noise barrier along the shoulder of the southbound lanes of SR 826. The results of the noise barrier analysis for CNE-PRV are summarized in **Table 5-11**. This 2,300-foot long noise barrier would be located between Sta. 611+85 and 624+85 (See **Sheets 5 and 6** in **Appendix C**) and would be limited to a height of no more than 8 feet tall.

Build Alternative noise levels with this noise barrier design concept are predicted to range from 67.3 to 67.4 dB(A). This design concept is predicted to reduce noise levels at the impacted sites by an average of 3.8 dB(A) and a maximum of 3.9 dB(A) compared to the predicted noise levels without any noise abatement. Due to the 8-foot tall height restriction for noise barriers located on structure, none of the eight (8) impacted residences were predicted to experience a noise level reduction of at least 5.0 dB(A). Thus, this noise barrier will not attain the FDOT's noise reduction design requirement of 7 dB(A) at one or more sites.

A noise barrier for the impacted sites represented by CNE-PRV is not considered reasonable according to FDOT criteria and is not recommended for further consideration since it was not possible to meet FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one (1) impacted receptor site.

6.0 SUMMARY AND RECOMMENDATIONS

In summary, traffic noise levels were predicted for noise sensitive locations along the project corridor for the existing (2019) conditions and the design year (2045) No-Build and recommended Build Alternative. Build Alternative traffic noise levels at the residences are expected to range from approximately 53.7 to 79.0 dB(A) during the project's design year. Build Alternative traffic noise levels at the non-residential/special-use sites are expected to range from approximately 37.2 dB(A) inside the Palmetto General Hospital to 76.7 dB(A) at the Mater Academy Elementary School playground. The worst-case design year traffic noise levels with the Build Alternative are predicted to be no more than 1.9 dB(A) greater than existing levels and 1.5 greater than the design year No-Build noise levels.

Design year traffic noise levels with the planned improvements are predicted to approach or exceed the FHWA NAC for residential use [67 dB(A)] at 416 residences. In addition, the design year traffic noise level with the planned improvements are predicted to approach or exceed the correlating FHWA NAC at the following sites:

- Florida National University (2) – Outdoor tables and playground [NAC-67 dB(A)];
- Don Quijote Plaza – park [NAC-67 dB(A)];
- Mater Academy Elementary School – playground [NAC-67 dB(A)]; and
- Don Camaron Seafood – Restaurant Outdoor seating area [NAC-72 dB(A)].

Based on the FHWA and FDOT methodologies used to evaluate traffic noise levels in this study, modifications proposed with this project are expected to result in traffic noise impacts at noise sensitive sites within the project study area and consideration of noise abatement is required to mitigate these impacts. An analysis of noise abatement measures considered for all sites that approach or exceed the NAC is presented in **Chapter 5** of this report. Although a number of sites approach or exceed the NAC, the proposed improvements do not result in any substantial noise increases [i.e., at least 15 dB(A) over existing levels].

In accordance with traffic noise study requirements set forth by both the FHWA and FDOT, noise barriers were considered for all noise sensitive receptor sites where design year Build Alternative traffic noise levels were predicted to equal or exceed the NAC. Noise barriers were evaluated at nine (9) locations to mitigate noise impacts. The locations where barriers were evaluated or planned are depicted in the figures in **Appendix C**.

Noise abatement is not reasonable and/or feasible for any of the impacted CNEs and not recommended for further consideration. Based on the results of detailed noise barrier cost analyses conducted for the following CNEs, the cost of these noise barriers exceeded FDOT's Noise Barrier Cost Reasonableness Guideline ($42,000/benefitted site):

- **CNE-ToW** – Towers of Westland. East side of SR 826 at 4500 W 19th Court. One hundred twenty-six (126) impacted condominiums.
- **CNE-E1 –** East side of SR 826 between W 54th Street to W 60th Street. One hundred fifty (150) impacted condominiums and apartments.

Table 6 - 12: Noise Barrier Recommendations

General Location (Cross Streets or Address)	Noise Barrier Conceptual Design	Noise Barrier Type	Height (feet)	Length (feet)	Limits (Begin/ End Station Number)	Number of Benefited Receptors (Impacted/ Not Impacted/ Total)	Average (Maximum) Noise Reduction for all Benefited Receptor Sites dB(A)	Estimated Overall Cost (Based on $30 per square foot Unless Otherwise Noted)	Estimated Cost/Site Benefited	Meets FDOT's Reasonable Cost Criteria ($42,000/ Site Benefited Unless Otherwise Noted)	Meets FDOT's Noise Reduction Design Goal	Noise Barrier Recommended for Further Consideration and Community Input	Comments
CNE-FNU Florida National University Picnic Tables and Playground East Side – W 42nd Place to W 44th Place	FNU-CD1	Shoulder-Mounted	14	610	510+80 to 516+90	1/0/0	6.4 (6.4)	$397,800	N/A	N/A	No	No	**Not Recommended** – Does not achieve 7.0 dB(A) at any of the benefited sites. Also, based on needed usage, cost exceeds FDOT's Noise Barrier Cost Reasonable Criteria for Special Use Sites.
		Structure-Mounted	8	590	516+90 to 5522+85								
CNE-TOW Towers of Westland Patios and Balconies East Side – W44th Place and NW 103rd Street	ToW-CD4	Shoulder-Mounted	14	510	511+80 to 516+90	28/2/30	6.2 (7.8)	$383,400	$12,780	No* (See comments)	Yes	No* (See comments)	**Not Recommended** – Achieves FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one impacted receptor site. A detailed cost estimate has been prepared for this noise barrier design concept to account for non-standard, noise barrier-specific costs such as modifying the retaining wall, drainage, utilities, signing, ITS and lighting that are required in order to construct this noise barrier. This cost estimate can be found in **Appendix D**.
		Structure-Mounted	8	705	516+90 to 5523+90								
CNE-DCS Don Camaron Seafood Outdoor seating area West Side – NW 95th Street	DCS-CD2	Shoulder-Mounted	14	900	500+80 to 509+80	1/0/1	7.1 (7.1)	$378,000	See Table 5.5	Cost exceeds reasonableness criteria for Special Use Sites	Yes	No	**Not Recommended** – Based on needed usage, cost exceeds FDOT's Noise Barrier Cost Reasonable Criteria for Special Use Sites.
CNE-MPG Mater Academy Elementary Playground West Side – NW 98th Street	MPG-CD2	Shoulder-Mounted	14	700	508+80 to 515+80	1/0/1	7.0 (7.0)	$294,000	See Table 5.7	Cost exceeds reasonableness criteria for Special Use Sites	Yes	No	**Not Recommended** – Based on needed usage, cost exceeds FDOT's Noise Barrier Cost Reasonable Criteria for Special Use Sites.
CNE-E1 Westland Eden, Meadowgreen, Palm West Gardens, Westland Gardens and Conquistador Park W 54th Street to W 60th Street Patios and Balconies East Side – W 54th Street to W 60th Street	E1-CD3	Shoulder-Mounted	14	1,300	543+80 to 556+80	36/7/43	6.5 (8.1)	$738,000	$17,163	No* (See comments)	Yes	No* (See comments)	**Not Recommended** - Achieves FDOT's noise reduction design goal of at least a 7.0 dB(A) reduction for at least one impacted receptor site. A detailed cost estimate has been prepared for this noise barrier design concept to account for non-standard, noise barrier-specific costs such as modifying the retaining wall, drainage, utilities, signing, ITS and lighting that are required in order to construct this noise barrier. This cost estimate can be found in **Appendix D**.
		Structure-Mounted	8	800	556+80 to 564+80								
CNE-W1 West Lake,Westland Village and Unnamed Townhomes Patios West Side – W53rd Street to W 58th Street	W1-CD1	Shoulder-Mounted	8	2,690	6535+80 to 566+80	0/0/0	N/A	$645,600	N/A	N/A	No	No	**Not Recommended** – Does not achieve 7.0 dB(A) at any of the benefited sites.
CNE-E2 Palmetto, Palmetto Gardens North, Villa Luisa, Andes, Palm Springs Lakes and Los Arboles Patios and Balconies East Side – W 60th Street to NW 122nd Street	E2-CD1	Structure-Mounted	8	2,400	568+80 to End of NB Off-Ramp to NW 122nd Street	0/0/0	N/A	$576,000	N/A	N/A	No	No	**Not Recommended** – Does not achieve 7.0 dB(A) at any of the benefited sites.
CNE-PRV Poinciana Royale Villas Patios West Side – W 75th Street to W 76th Street	PRV-CD1	Structure-Mounted	8	1,300	611+85 to 624+85	0/0/0	N/A	$312,000	N/A	N/A	No	No	**Not Recommended** – Does not achieve 7.0 dB(A) at any of the benefited sites.

The noise level reduction provided by the noise barrier design concepts for the following CNEs did not meet FDOT's Noise Reduction Design Goal:

- CNE-W1 – W 53rd Street to W 58th Street. Thirty-nine (39) impacted residences. West side of SR 826. Existing structure.
- CNE-E2 – W 60th Street to NW 122nd Street. Ninety-three (93) impacted residences. East side of SR 826. Existing structure.
- CNE-W2 – W 75th Street to W 76th Street. Eight (8) impacted residences. West side of SR 826. Existing structure.

The noise barrier design concepts for the following CNEs did not meet FDOT Noise Barrier Cost Reasonable Guideline for Special Use Sites:

- CNE-FNU – Florida National University. Outdoor tables and playground. East side of SR 826 at 4500 W 19th Court. Insufficient available right-of-way.
- CNE-DCS – Don Camaron Seafood Restaurant. Outdoor seating area. West side of SR 826 at 9491 NW 77th Court.
- CNE-MPG– Mater Academy Elementary School. Playground West side of SR 826 at 7700 NW 98th Street.

The noise barrier design concept for the following CNE was were not feasible for construction:

- CNE-DQP – Don Quijote Plaza Park. East side at the southeast corner of the SR 826/NW 103rd Street interchange. Encroaches upon FDT 24-inch gas line.

Therefore, noise barriers are not recommended for further consideration at these locations. Based on the noise analyses performed to date, there are no apparent solutions available to mitigate the noise impacts at any of the 416 impacted residences and five (5) impacted special land use sites along the project corridor. The traffic noise impacts to these noise sensitive sites are considered to be an unavoidable consequence of the project. Any updates to the design plans will be reviewed to verify that no changes to the evaluation documented in this report have occurred.

7.0 CONSTRUCTION NOISE AND VIBRATION

During construction of the project, there is the potential for noise impacts to be substantially greater than those resulting from normal traffic operations due to the heavy equipment typically used to build roadways. In addition, construction activities may result in vibration impacts. Therefore, early identification of potential noise/vibration sensitive sites along the project corridor is important in minimizing noise and vibration impacts. The project area does include residences, schools, parks, hotels, places of worship and medical offices that may be affected by noise and vibration associated with construction activities. These sites are identified in **Table 4-2**. Construction noise and vibration impacts to these sites will be minimized by adherence to the controls listed in the latest edition of the FDOT's Standard Specifications for Road and Bridge Construction. According to Section 335.02 of the Florida Statutes, the FDOT is exempt from compliance with local ordinances. However, it is the FDOT's policy is to follow the requirements of local ordinances to the extent that is considered reasonable. Also, the contractor will be instructed to coordinate with the project engineer and the District Noise Specialist should unanticipated noise or vibration issues arise during project construction.

8.0 COORDINATION WITH LOCAL OFFICIALS

Agency coordination to obtain noise-related information for this project occurred through the Efficient Transportation Decision Making (ETDM) Programming Screening (ETDM #14455) and the Advance Notification process. The ETDM review occurred between September 14, 2020 and October 29, 2020, and the Programming Screen Summary Report was published on November 13, 2020. No comments were received on noise-related issues.

To aid in promoting land use compatibility, a copy of this NSR, which provides information that can be used to protect future land development from becoming incompatible with anticipated traffic noise levels, will be provided to Miami-Dade County. In addition, generalized future noise impact contours for properties in the immediate vicinity of the project have been developed for Noise Abatement Activity Categories B/C and E (i.e., residential/other sensitive land uses and sensitive commercial, respectively). These contours represent the approximate distance from the edge of the nearest proposed travel lane of a roadway to the limits of the area predicted to approach [i.e., within 1 dB(A)] or exceed the NAC in the Design Year 2045. These contours do not consider any shielding of noise provided by structures between the receiver and the proposed travel lanes. Contours were generally developed for portions of the project that are located away from significant ground features such as existing noise barriers. Within the project corridor, the distance between the proposed edge of the outside travel lane and the contour at various locations are presented in **Table 8-1**. To minimize the potential for incompatible land use, noise sensitive land uses should be located beyond this distance.

Table 8 - 1: Design Year (2045) Build Alternative Noise Impact Contour Distances

Location		Distance from Proposed Nearest Travel Lane to Noise Contour Line (Feet)	
Roadway Segment	**Side of Road**	**51/71 dB(A) – Activity Category D/E**	**66 dB(A) – Activity Category B/C**
Okeechobee Road to NW 103rd Street Station 290+00	East	155	310
	West	180	375
NW 103rd Street to W 60th Street Station 554+00	East	190	375
	West	190	380
W 60th Street to NW 122nd Street Station 576+60	East	100	415
	West	120	460
NW 122nd Street to I-75 Station 610+80	East	185	360
	West	210	410
I-75 to NW 154th Street Station 673+60	East	70	150
	West	115	400

9.0 COMMITMENTS

During subsequent phases of the project, the FDOT will adhere to the following commitments:

- Construction noise and vibration impacts to the project corridor will be minimized by adherence to the controls listed in the latest edition of the FDOT's Standard Specifications for Road and Bridge Construction.

10.0 REFERENCES

Florida Department of Transportation, “Project Development and Environment Manual, Part 2, Chapter 18-Highway Traffic Noise”, July 1, 2020.

23 CFR Part 772, "*Procedures for Abatement of Highway Traffic Noise and Construction Noise*", Federal Register, Vol. 75, No. 133, Tuesday, July 13, 2010; pages 39834-39839.

Federal Highway Administration Report FHWA-HEP-10-025, “*Highway Traffic Noise: Analysis and Abatement Guidance*”, June 2010 (revised December 2010); 76 pages.

Florida Statute 335.17, “*State highway construction; means of noise abatement*”. 1989; 1 page.

Florida Department of Transportation "*Traffic Noise Modeling and Analysis Practitioners Handbook*", January 2016.

Federal Highway Administration Report Number FHWA-PD-96-046, “*Measurement of Highway-Related Noise*”. Cynthia S.Y. Lee and Gregg Fleming; May 1996; 206 pages.

Florida Department of Transportation, "*Standard Specifications for Road and Bridge Construction*". July 2020; 1,220 pages.

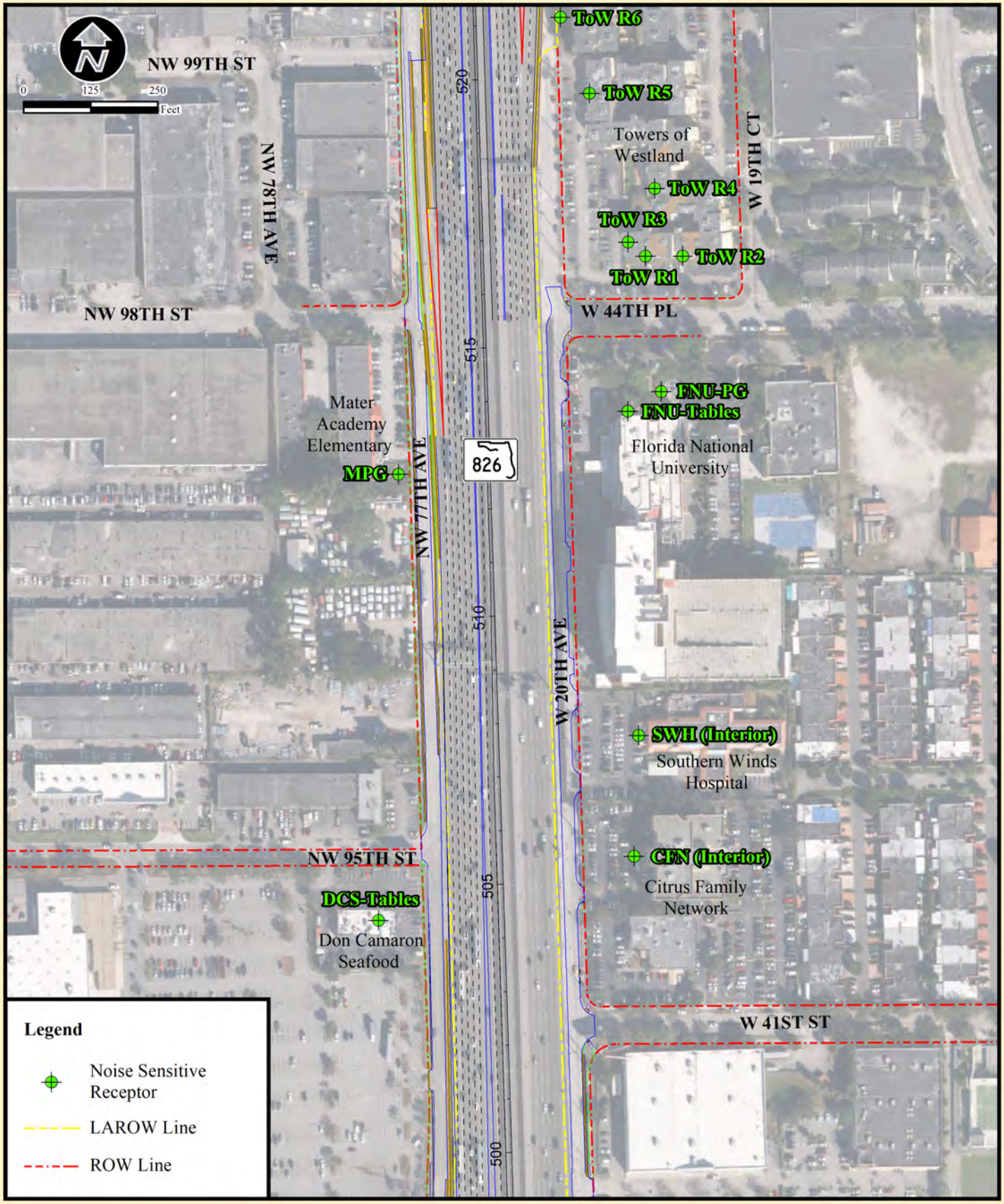
Florida Department of Transportation, " *Topic #625-000-002 FDOT Design Manual*". October 2019.

Federal Highway Administration Report FHWA-HEP-06-015, “*FHWA Highway Construction Noise Handbook: Final Report*”. August 2006; 185 pages.

Florida Department of Transportation, “*A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations*” (July 22, 2009)

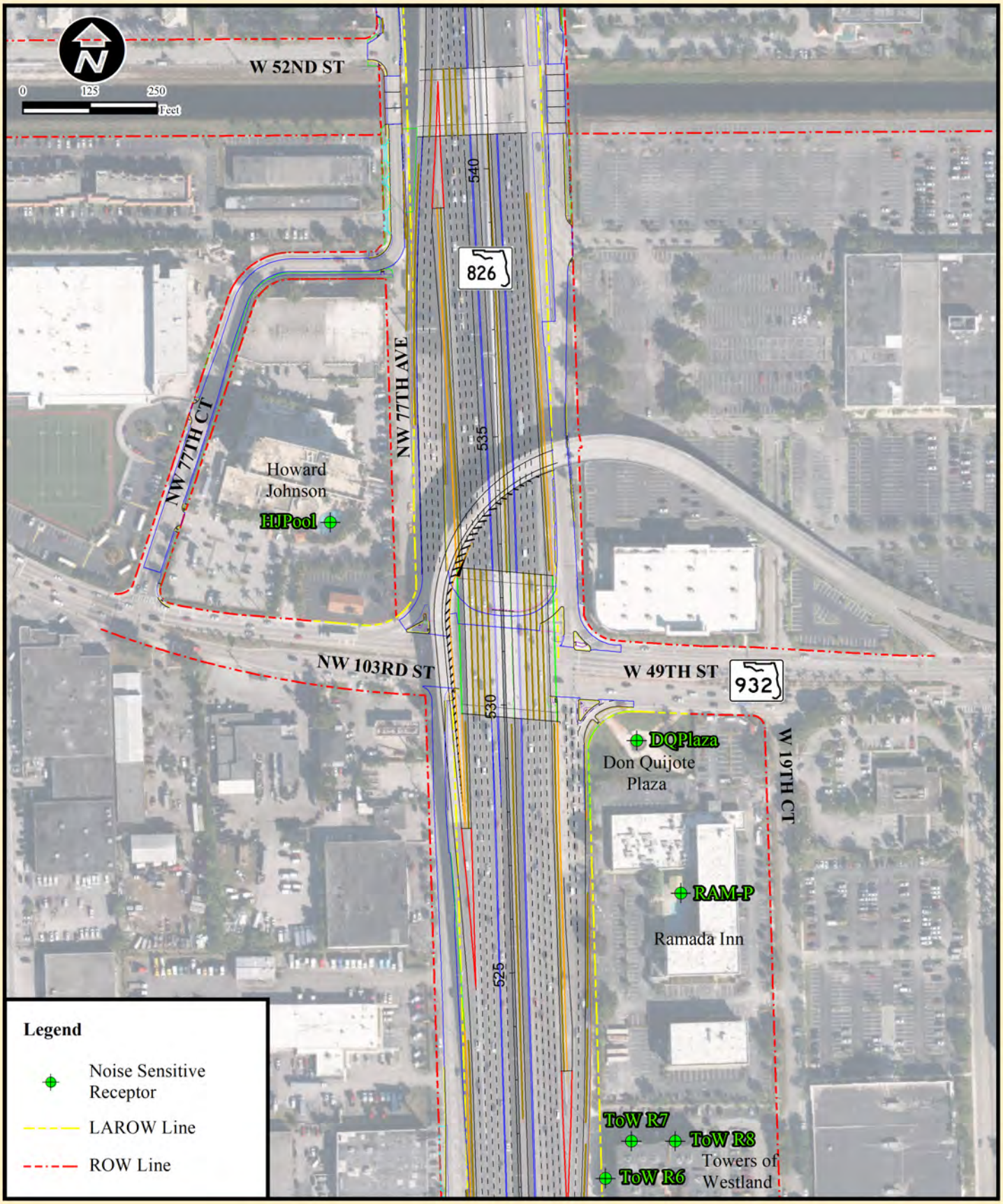
APPENDIX A

Noise Sensitive Receptors Map



Noise Sensitive Receptors Map
Sheet 1

SR 826 / Palmetto Expressway PD&E Study
from South of NW 36th Street (MP 8.355)
to North of NW 154th Street (MP 17.950)
Miami-Dade County, Florida
FM #447165-1-22-01, 441830-1-22-01, and 441831-1-22-01
ETDM #14455; Federal Aid Project Number N/A



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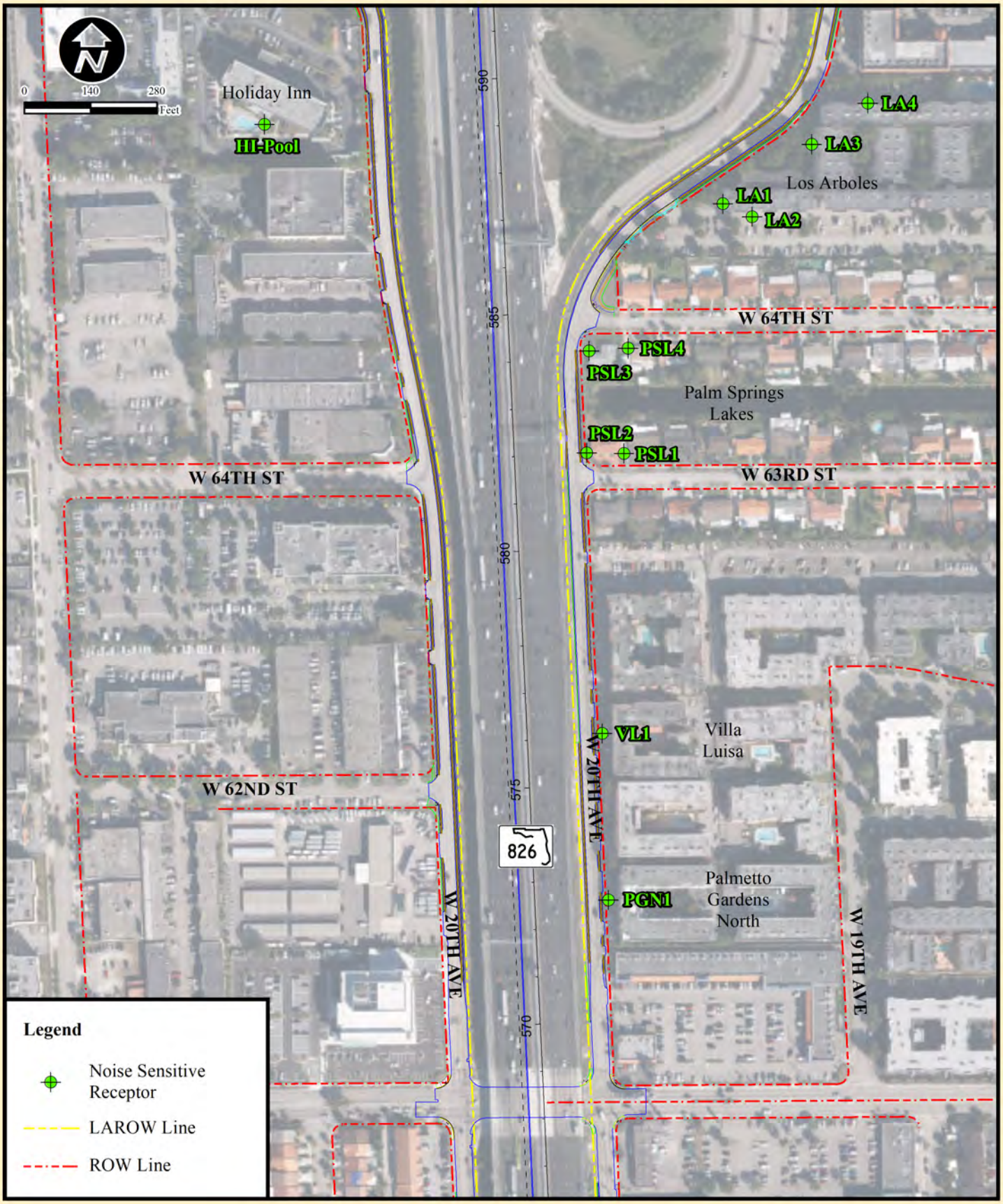

Noise Sensitive Receptors Map
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Noise Sensitive Receptors Map
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Noise Sensitive Receptors Map
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to North of NW 154th Street (MP 17.950)
Miami-Dade County, Florida
FM #447165-1-22-01, 441830-1-22-01, and 441831-1-22-01
ETDM #14455; Federal Aid Project Number N/A

APPENDIX B

Traffic Data

Traffic Data Used in TNM Model			
Roadway Link	Existing (Hourly Volume)	Design Year No-Build (Hourly Volume)	Design Year Build (Hourly Volume)
Mainline Segments			
SR 826 Mainline (Not including managed lanes) Northbound Okeechobee Road Off-Ramp to Okeechobee Road On-Ramp/Exp Lane Ent Freeway, lchg. <2 miles apart	6,200	6,200	6,200
SR 826 Mainline (Not including managed lanes) Northbound Express Lanes Entrance to NW 103rd Street Of-Ramp Freeway, lchg. <2 miles apart	5,650	5,650	7,200
SR 826 Mainline (Not including managed lanes) Northbound NW 103rd Street Off-Ramp to NW 103rd Street On-Ramp Freeway, lchg. <2 miles apart	4,650	4,650	7,200
SR 826 Mainline (Not including managed lanes) Northbound NW 103rd Street On-Ramp to NW 122nd Street Off-Ramp Freeway, lchg. <2 miles apart	5,650	5,650	7,200
SR 826 Mainline (Not including managed lanes) Northbound NW 122nd St Off-Ramp to NW 122nd Street On-Ramp Freeway, lchg. <2 miles apart	4,650	4,650	6,200
SR 826 Mainline (Not including managed lanes) Northbound NW 122nd St./W. 68th St. to WB I-75 GP off-ramp Freeway, lchg. <2 miles apart	5,650	5,650	7,200
SR 826 Mainline (Not including managed lanes) Northbound WB I-75 GP off-ramp to EB Gratigny Pkwy. off-ramp Freeway, lchg. <2 miles apart	4,650	4,650	6,200
SR 826 Mainline (Not including managed lanes) Northbound EB Gratigny Pkway on-ramp to NW 154th Street Off-Ramp Freeway, lchg. <2 miles apart	4,650	4,650	6,200
SR 826 Mainline (Not including managed lanes) Northbound NW 154th Street Off-Ramp to NPT Freeway, lchg. <2 miles apart	4,650	4,650	6,200
SR 826 Mainline (Not including managed lanes) Southbound NW 154th Street Off-Ramp to NW 154th Street On-Ramp Freeway, lchg. <2 miles apart	4,100	4,650	6,200
SR 826 Mainline (Not including managed lanes) Southbound NW 154th Street On-Ramp to WB I-75 Off-Ramp Freeway, lchg. <2 miles apart	5,600	5,650	7,200
SR 826 Mainline (Not including managed lanes) Southbound WB I-75 off-ramp to EB Gratigny Pkwy. off-ramp Freeway, lchg. <2 miles apart	4,100	4,650	6,700
SR 826 Mainline (Not including managed lanes) Southbound EB Gratigny Pkwy. off-ramp to EB I-75 On-Ramp Freeway, lchg. <2 miles apart	3,600	4,300	6,200
SR 826 Mainline (Not including managed lanes) Southbound EB I-75 On-Ramp to NW 122nd Street Off-Ramp Freeway, lchg. <2 miles apart	6,000	7,200	8,760
SR 826 Mainline (Not including managed lanes) Southbound NW 122nd Street Off-Ramp to NW 122nd Street On-Ramp Freeway, lchg. <2 miles apart	4,400	6,200	7,760
SR 826 Mainline (Not including managed lanes) Southbound NW 122nd Street On-Ramp to NW 103rd Street Off-Ramp Freeway, lchg. <2 miles apart	6,300	7,200	8,760
SR 826 Mainline (Not including managed lanes) Southbound NW 103rd Street Off-Ramp to WB NW 103rd Street On-Ramp Freeway, lchg. <2 miles apart	4,650	4,650	7,700
SR 826 Mainline (Not including managed lanes) Southbound WB NW 103rd Street On-Ramp to EB NW 103rd Street On-Ramp Freeway, lchg. <2 miles apart	5,600	6,200	6,200
SR 826 Mainline (Not including managed lanes) Southbound EB NW 103rd Street On-Ramp to Okeechobee Road Off-Ramp Freeway, lchg. <2 miles apart	6,200	7,200	8,200
SR 826 Mainline (Not including managed lanes) Southbound Okeechobee Road Off-Ramp to Okeechobee Road On-Ramp Freeway, lchg. <2 miles apart	5,500	6,200	7,760

Traffic Data Used in TNM Model

Roadway Link	Existing (Hourly Volume)	Design Year No-Build (Hourly Volume)	Design Year Build (Hourly Volume)
Mainline Segments			
SR 826 Mainline (Not including managed lanes) Southbound Okeechobee Road On-Ramp to NW 74th Street Off-Ramp Freeway, Ichg. <2 miles apart	6,100	7,200	8,200
SR 826 Managed Lanes Northbound SPT to Entrance North of Okeechobee Road Special Use/Managed Lane	2,600	3,320	1,660
SR 826 Managed Lanes Northbound Managed Lanes Entrance North of Okeechobee Special Use/Managed Lane	800	1,100	1,400
SR 826 Managed Lanes Northbound North of Okeechobee Road to I-75 DC Off-Ramp Special Use/Managed Lane	3,320	3,320	1,500
SR 826 Managed Lanes Northbound I-75 DC Off-Ramp to NPT Special Use/Managed Lane	1,660	1,660	N/A
SR 826 Managed Lanes Southbound NPT to I-75 DC On-Ramp Special Use/Managed Lane	1,100	1,400	N/A
SR 826 Managed Lanes Southbound I-75 DC On-Ramp to Exit at Okeechobee Special Use/Managed Lane	1,700	2,700	800
SR 826 Managed Lanes Southbound Managed Lane Entrance South of WB NW 103rd St. On-Ramp Special Use/Managed Lane	300	400	2,300
SR 826 Managed Lanes Southbound Managed Lane Exit North of Okeechobee Off-Ramp Special Use/Managed Lane	1,660	400	400
SR 826 Managed Lanes Southbound Exit at Okeechobee to SPT Special Use/Managed Lane	1,400	2,400	2,700

Notes:
Traffic data provided by the project's traffic consultant and approved by the FDOT project manager.
LOS C data from FDOT's Traffic tables for Generalized Peak Hour One-Way Volumes for Florida's Urbanized Areas
N/A = Not Available
PHD = Peak Hour Demand
LOS C = Level-of-Service C

Traffic Data Used in TNM Model

Roadway Link	Existing (Hourly Volume)	Design Year No-Build (Hourly Volume)	Design Year Build (Hourly Volume)
Access Ramps			
SR 826/Okeechobee Road Interchange Northbound Okeechobee Road on-ramp to NB SR 826 On-ramp	1,300	1,600	1,700
SR 826/NW 103rd St. Interchange Northbound NB SR 826 off-ramp to NW 103rd St. Off-ramp	1,700	2,100	2,300
SR 826/NW 103rd St. Interchange Northbound NW 103rd St. on-ramp to NB SR 826 On-ramp	1,000	1,400	1,400
SR 826/NW 122nd St. Interchange Northbound NB SR 826 off-ramp to NW 122nd St. Off-ramp	1,400	1,600	2,400
SR 826/NW 122nd St. Interchange Northbound NW 122nd St. on-ramp to NB SR 826 On-ramp	1,000	1,300	1,300
SR 826/I-75/Gratigny Pkwy Interchange Northbound to Westbound NB SR 826 off-ramp to WB I-75 Off-ramp	2,500	3,900	3,900
SR 826/I-75/Gratigny Pkwy Interchange Northbound to Eastbound NB SR 826 off-ramp to EB Gratigny Pkwy Off-ramp	500	800	800
SR 826/I-75/Gratigny Pkwy Interchange Westbound to Northbound EB I-75/WB Gratigny Expwy on-ramp to NB SR 826 On-ramp	1,100	2,000	1,300
SR 826/I-75/Gratigny Pkwy Interchange Northbound NB SR 826 off-ramp to NW 154th St. CD Road	900	1,100	1,100
SR 826/I-75/Gratigny Pkwy Interchange Southbound to Westbound SB SR 826 off-ramp to WB I-75 Off-ramp	1,500	1,900	1,800
SR 826/I-75/Gratigny Pkwy Interchange Southbound to Eastbound SB SR 826 off-ramp to EB Gratigny Pkwy Off-ramp	400	500	500
SR 826/I-75/Gratigny Pkwy Interchange Eastbound to Southbound EB I-75 to SB SR 826 on-ramp Off-ramp	2,400	4,300	4,700
SR 826/NW 122nd St. Interchange Southbound SB SR 826 off-ramp to NW 122nd St. On-ramp	1,600	1,800	1,700
SR 826/NW 122nd St. Interchange Southbound NW 122nd St. on-ramp to SB SR 826 Off-ramp	2,000	2,300	2,300
SR 826/NW 103rd St. Interchange Southbound SB SR 826 off-ramp to NW 103rd St. On-ramp	1,400	1,600	1,600
SR 826/NW 103rd St. Interchange Westbound to Southbound WB NW 103rd St. on-ramp to SB SR 826 On-ramp	700	1,400	1,400
SR 826/NW 103rd St. Interchange Southbound EB NW 103rd St. on-ramp to SB SR 826 Off-ramp	600	800	800
SR 826/Okeechobee Road Interchange Southbound SB SR 826 off-ramp to Okeechobee Road Off-ramp	900	1,800	2,100

Notes:
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LOS C data from FDOT's Traffic tables for Generalized Peak Hour One-Way Volumes for Florida's Urbanized Areas
N/A = Not Available
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LOS C = Level-of-Service C

Traffic Data Used in TNM Model

Roadway Link	Existing (Hourly Volume)	Design Year No-Build (Hourly Volume)	Design Year Build (Hourly Volume)
Cross Streets			
NW 103rd Street Eastbound West of SR 826 State Signalized, Class I	2,940	2,940	2,940
NW 103rd Street Westbound West of SR 826 State Signalized, Class I	2,940	2,940	2,940
NW 103rd Street Eastbound East of SR 826 State Signalized, Class I	2,940	2,940	2,940
NW 103rd Street Westbound East of SR 826 State Signalized, Class I	2,940	2,940	2,940
W. 20th Avenue Each West of SR 826, W. 52nd St. to W. 60th St. Non-State, Class II Signalized Rdwy	333	333	333
W. 20th Avenue Each East of SR 826, W. 52nd St. to W. 60th St. Non-State, Class II Signalized Rdwy	333	333	333
W. 20th Avenue Each East of SR 826, W. 60th St. to NW 122nd St. Non-State, Class II Signalized Rdwy	333	333	333
W. 20th Avenue Each West of SR 826, NW 122nd St. to I-75 Non-State, Class II Signalized Rdwy	333	333	333
W. 60th Street Eastbound West of SR 826 Non-State, Class II Signalized Rdwy	624	624	624
W. 60th Street Westbound West of SR 826 Non-State, Class II Signalized Rdwy	624	624	624
NW 122nd Street Eastbound West of SR 826 Non-State, Class II Signalized Rdwy	624	624	624
NW 122nd Street Westbound West of SR 826 Non-State, Class II Signalized Rdwy	624	624	624
NW 122nd Street Eastbound East of SR 826 Non-State, Class I Signalized Rdwy	2,646	2,646	2,646
NW 122nd Street Westbound East of SR 826 Non-State, Class I Signalized Rdwy	2,646	2,646	2,646

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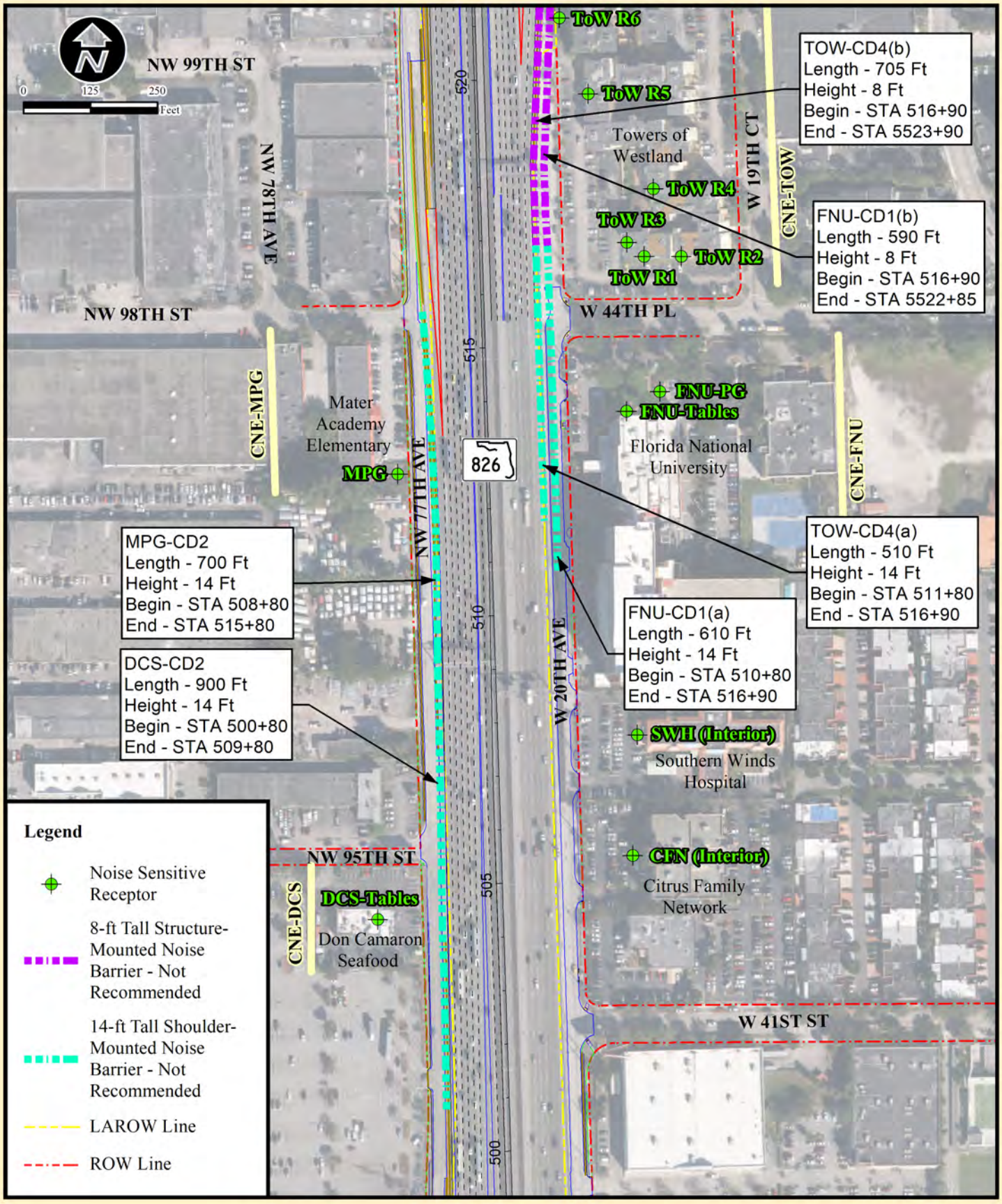
APPENDIX C

Noise Barrier Recommendations



Noise Barrier Recommendations
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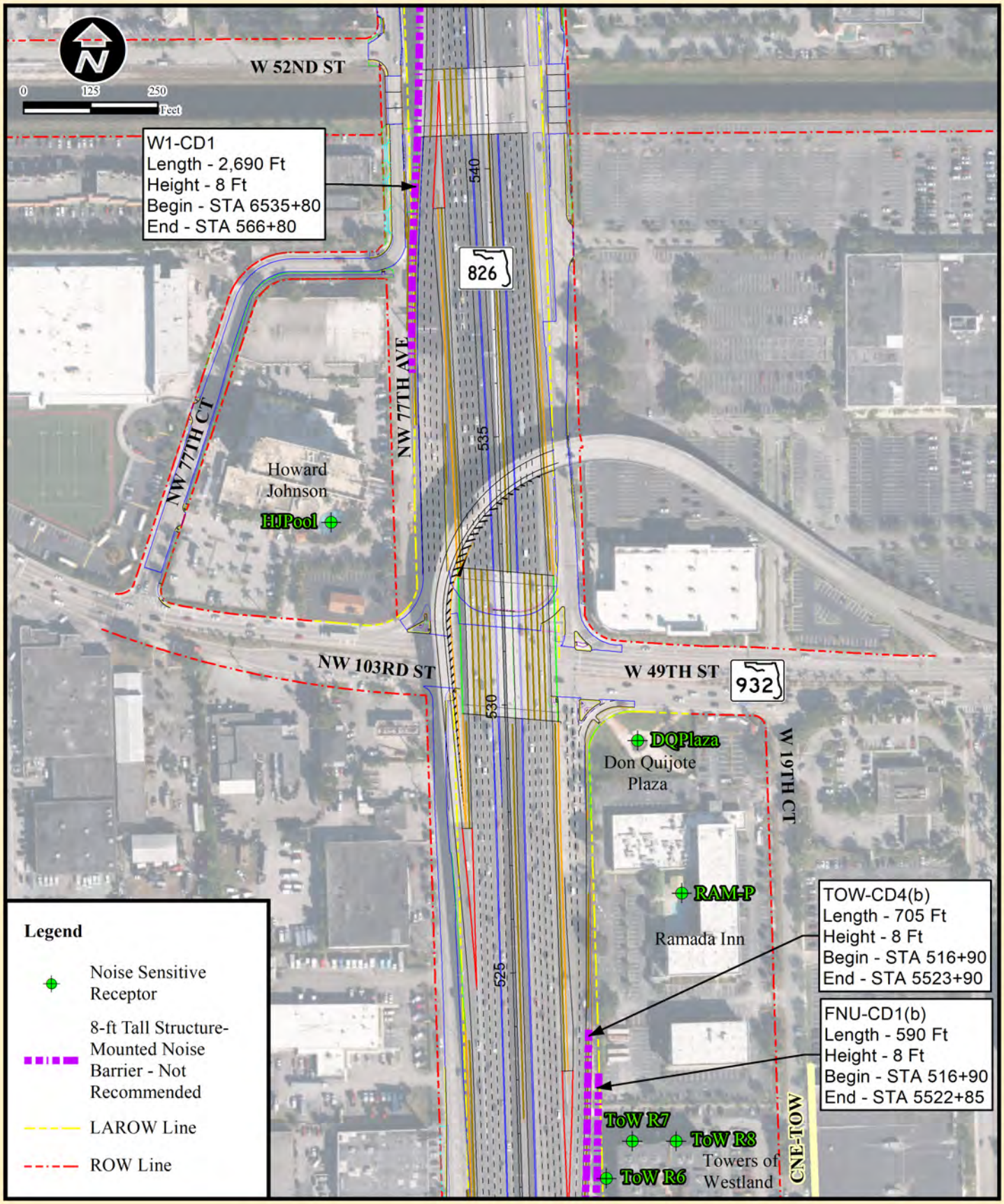

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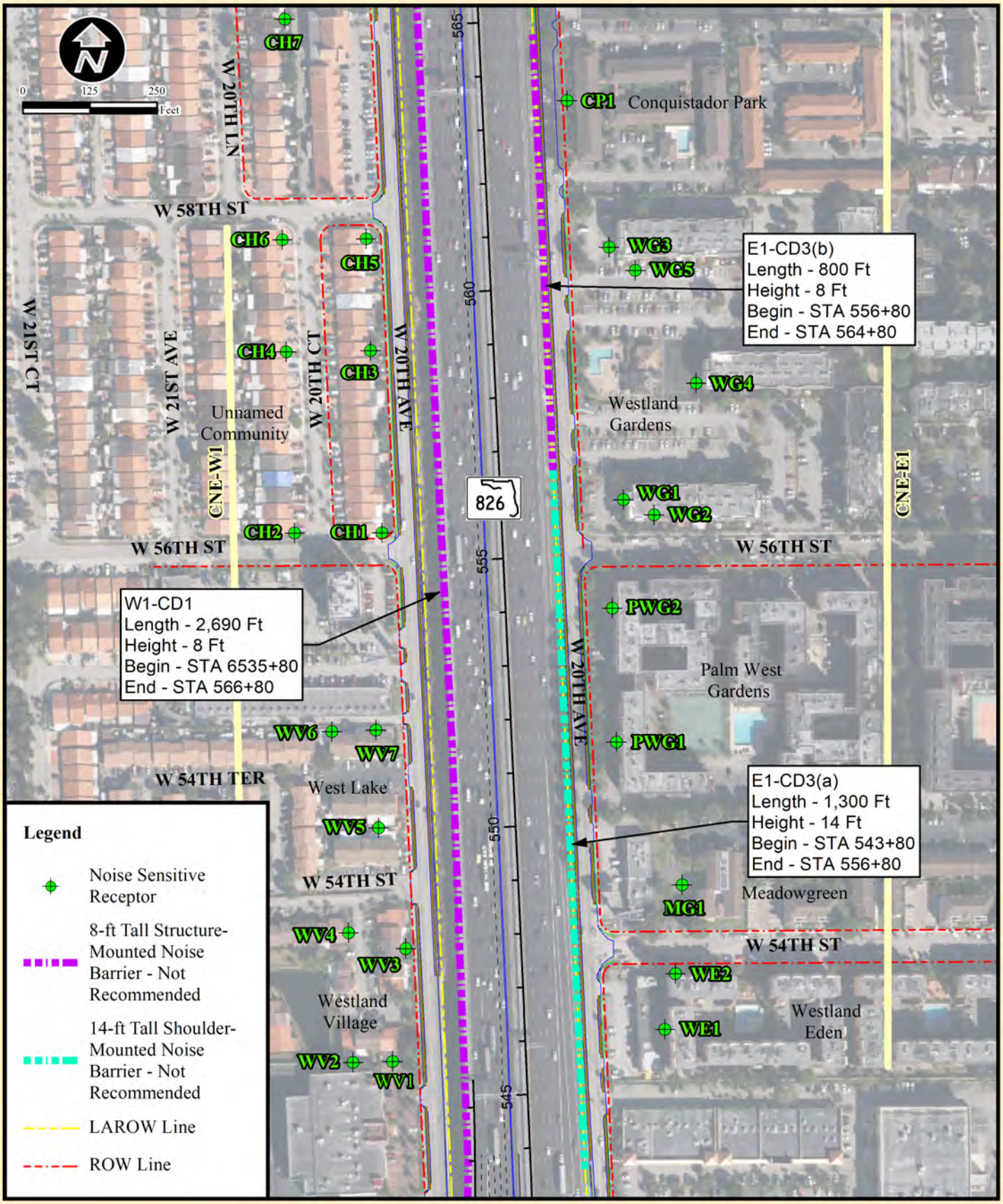

Noise Barrier Recommendations
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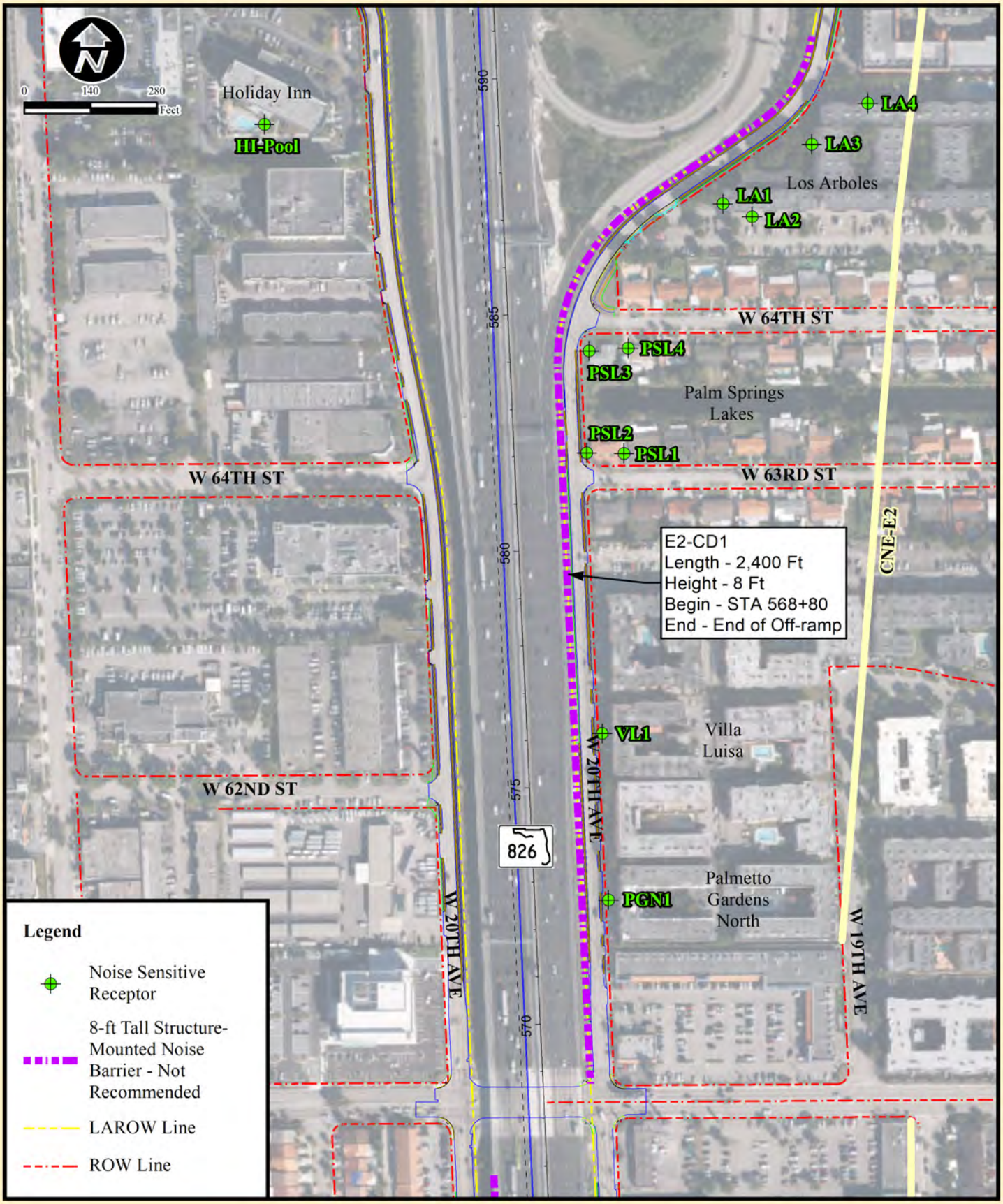

Noise Barrier Recommendations
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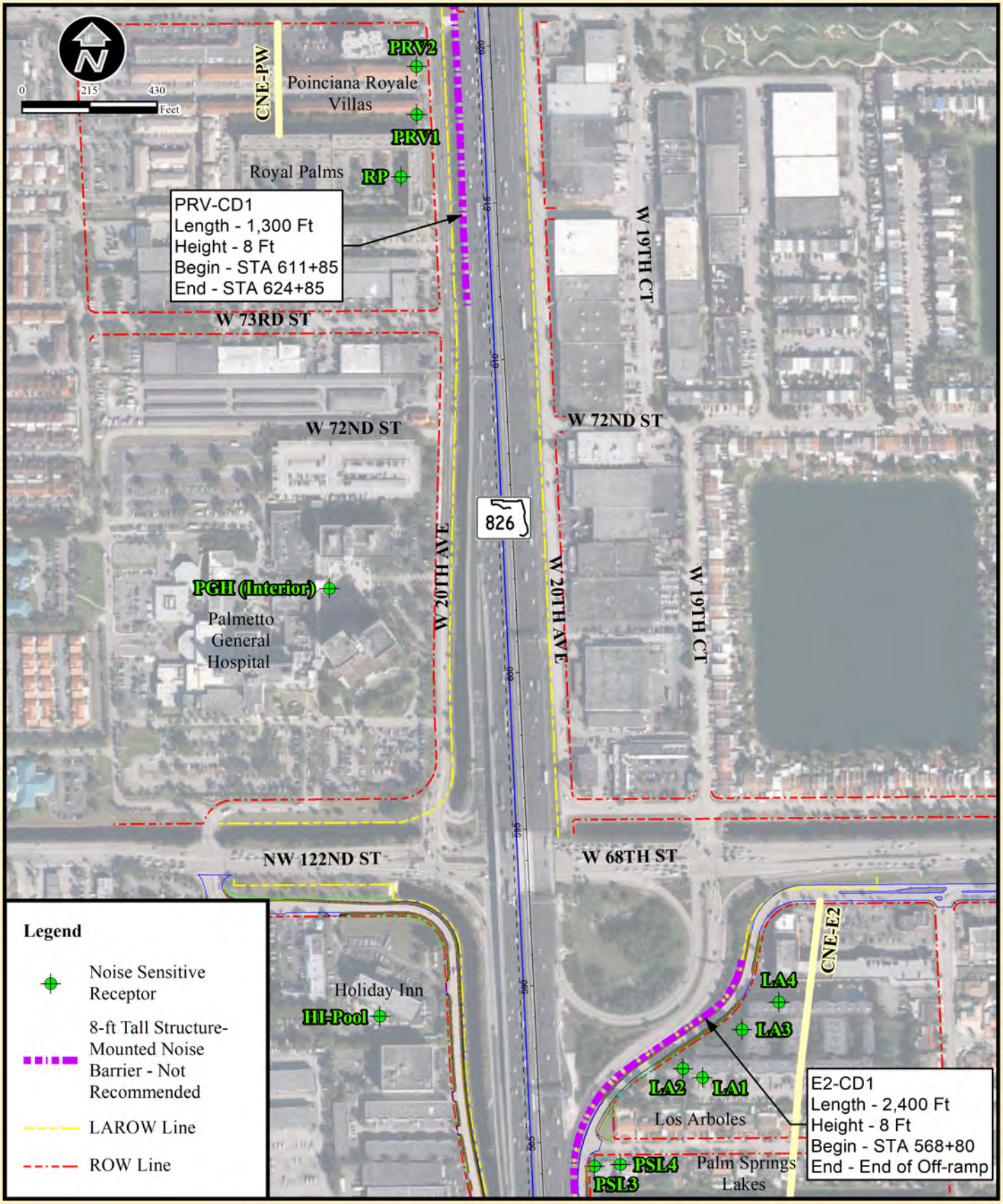
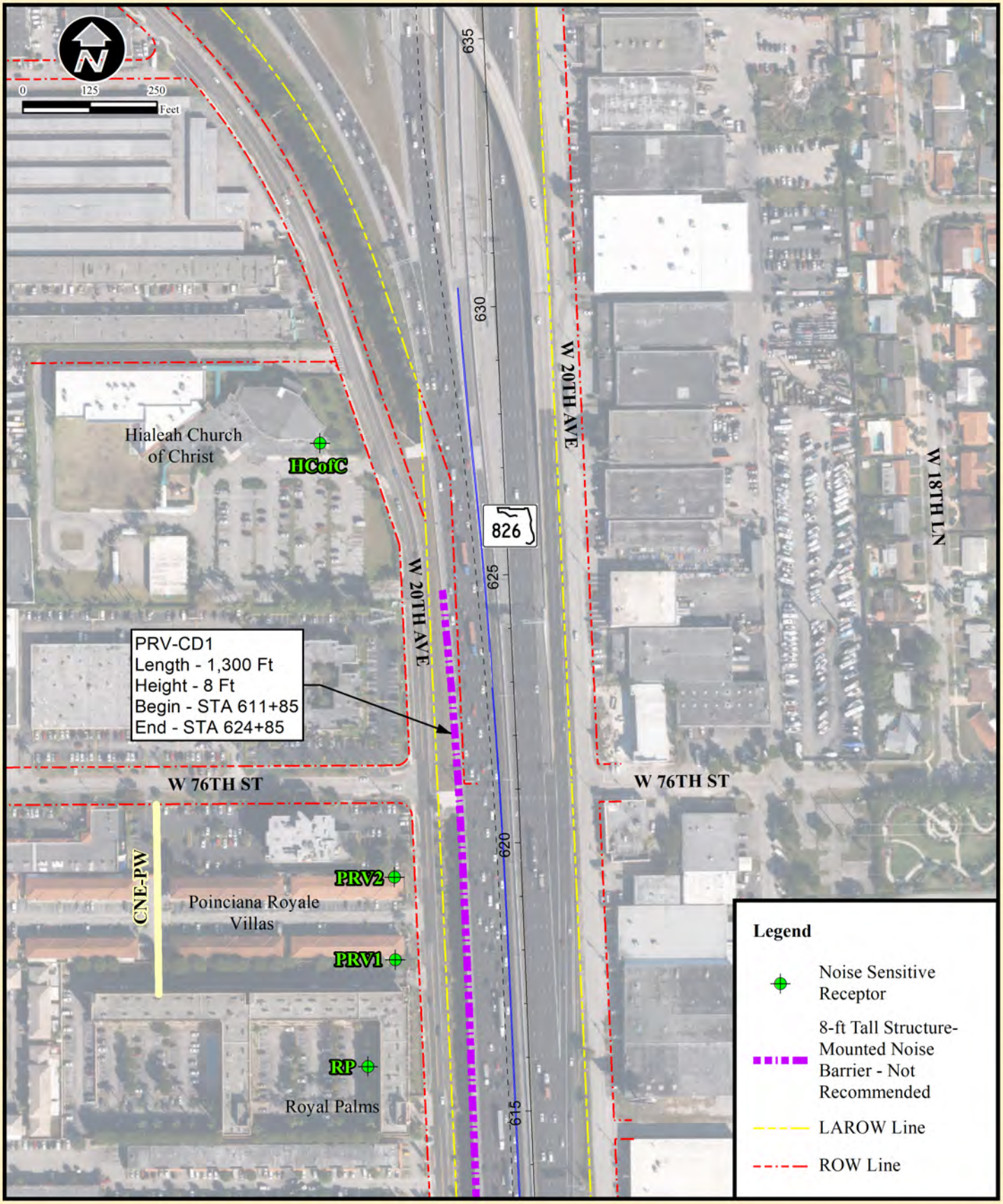


Noise Barrier Recommendations
Sheet 5

SR 826 / Palmetto Expressway PD&E Study
from South of NW 36th Street (MP 8.355)
to North of NW 154th Street (MP 17.950)
Miami-Dade County, Florida
FM #447165-1-22-01, 441830-1-22-01, and 441831-1-22-01
ETDM #14455; Federal Aid Project Number N/A



Noise Barrier Recommendations
Sheet 6

SR 826 / Palmetto Expressway PD&E Study
from South of NW 36th Street (MP 8.355)
to North of NW 154th Street (MP 17.950)
Miami-Dade County, Florida
FM #447165-1-22-01, 441830-1-22-01, and 441831-1-22-01
ETDM #14455; Federal Aid Project Number N/A

Noise Barrier Recommendations
Sheet 7

SR 826 / Palmetto Expressway PD&E Study
from South of NW 36th Street (MP 8.355)
to North of NW 154th Street (MP 17.950)
Miami-Dade County, Florida
FM #447165-1-22-01, 441830-1-22-01, and 441831-1-22-01
ETDM #14455; Federal Aid Project Number N/A

APPENDIX D

Noise Wall Feasibility & Cost Analysis

Note that noise barrier design concept E1-CD4 in this memo is referred to as E1-CD3 in the Noise Study Report

Memorandum

Date: Friday, November 20, 2020

Project: FPID 447165-1-52-01

Subject: Noise Wall Feasibility & Cost Analysis

FPID 447165-1-52-01 is a capacity project along SR 826/Palmetto Expressway, from south of NW 36 Street to north of NW 154 Street. The project scope includes modifications to the existing managed lanes and widening at the NW 103rd Street interchange to add a general-purpose lane in the southbound direction and a full-width shoulder in the northbound direction. This design-build project is currently in the preliminary engineering phase to develop the Concept Plans and Request for Proposal (RFP) package. The planned advertisement date is 1/29/2021 and the Letting Date is 9/21/2021. The purpose of this Memorandum is to summarize the impacts of adding noise walls to the project scope.

Background

The State Environmental Impact Report (SEIR) provided a preliminary recommendation to construct new noise barriers along the east side of SR 826 in the two segments listed below and shown in Attachments A & B. The proposed noise wall segments are along residential areas with existing condominium complexes in the City of Hialeah. The noise barriers would consist of noise walls 14 feet tall in at-grade segments in accordance with FDOT Standard Plans Index 521-514 and noise walls 8 feet tall mounted on the junction slab in accordance with FDOT Standard Plans Index 521-511 & 521-512 at the existing MSE retaining walls.

a) Noise Wall TOW-CD4
   - From south of W 44th Place (BL SR 826 sta. 511+80 RT) to south of NW 103rd Street/W 49th Street (NB Off-Ramp sta. 5523+90 RT).
   - Towers of Westland condominium complex

b) Noise Wall E1-CD4
   - From north of the Little River Canal (sta. 543+80 RT) to south of W 60th Street (sta. 564+80 RT).
   - Condominium complexes: Westland Eden, Meadowgreen, Palm-West Gardens, Westland Gardens, Conquistador Park.

Project Impacts

(1) Additional Cost

Constructing the noise walls in these two segments would cost approximately $3,651,000, in addition to the other project improvements already included in the Draft Concept Plans for FPID 447165-1-52-01. See Attachment C for the detailed Cost Estimate.

a) Noise Wall TOW-CD4, preliminary cost estimate = $1,419,000
b) Noise Wall E1-CD4, preliminary cost estimate = $2,232,000

(2) Right of Way

The proposed noise walls and foundations can be constructed within the existing FDOT right of way, with no additional construction easements anticipated.

(3) Utility Impacts

Construction of the proposed noise walls and foundations may impact existing utilities at the following locations.

- Sta. 511+80 to 515+45 RT, existing sanitary sewer between SR 826 NB and Frontage Road
- Sta. 515+34 RT, existing buried electric line crossing SR 826

The proposed noise walls are approximately 20-60 feet from the existing Florida Gas Transmission (FGT) 24" diameter gas main along the east side of SR 826.

(4) Roadway

Construction of the proposed noise walls would require removal of the existing shoulder barriers, excavation for the wall foundations, reconstruction of the existing shoulder pavement, and reconstruction of the existing junction slabs mounted on the MSE retaining walls.

(5) Drainage

a) Noise Wall TOW-CD4

Construction of the proposed noise walls and foundations would require replacement of the existing drainage structures and pipes along a portion of the wall, including approximately 115 feet of existing French drain (Sta. 516+58 to 517+73).

b) Noise Wall E1-CD4

Construction of the proposed noise walls and foundations would require replacement of all the existing drainage structures and pipes along length of the noise wall. There is an existing trench drain along the wall from Sta. 548+85 to Sta. 553+76. Since trench drain cannot be constructed within the proposed junction slab, additional barrier wall inlets would be needed to meet FDOT spread criteria.

(6) Maintenance of Traffic

a) Noise Wall TOW-CD4

Construction of the proposed noise walls would require a shoulder closure along the SR 826 northbound mainline and lane closures of the northbound auxiliary lane during off-peak hours. Advance warning signs shall be placed along the northbound auxiliary lane and northbound off-ramp to NW 103rd Street/W 49th Street. The Frontage Road/W 20th Avenue would require closure of the southbound lane and conversion to a one-lane two-way road with flagger operation or one-lane one-way northbound road with a detour of southbound traffic. Temporary barriers would be required along both sides of noise wall work zone. Noise Wall construction would also require temporary closure of a portion of the existing parking lot within the FDOT right of way along the east side of SR 826 north of W 44th Place, which is currently being leased to the Towers of Westland condominium complex (Lease # 6503).

b) Noise Wall E1-CD4

Construction of the proposed noise walls and foundations would require a shoulder closure along SR 826 northbound mainline and lane closures of the northbound auxiliary lane during off-peak hours. The Frontage Road/W 20th Avenue may require temporary shoulder closures for construction staging.

(7) Signing

a) Noise Wall TOW-CD4

Construction of the proposed noise walls and foundations would require replacement of one existing wall-mounted sign assembly and one overhead span sign structure at the NB Off-Ramp.

b) Noise Wall E1-CD4

Construction of the proposed noise walls and foundations would require replacement of four PTMS cabinets and associated pull boxes, conduits, loops and sensors (PTMS 870574 NB & SB, 870594 NB, and 870600 SB).

(8) Lighting

a) Noise Wall TOW-CD4

Construction of the proposed noise walls would impact four light poles installed on the existing wall along the Northbound Off-ramp from station 5518+85 to 5523+85. Light poles, conduit, junction boxes would need to be replaced and the proposed circuit conductors will need to be tied into the next up station pole approximately at station 5525+65. New light pole pilasters utilizing index 521-650 could be poured outside of the proposed barrier when the junction slab for the noise wall is reconstructed.

b) Noise Wall E1-CD4

Construction of the proposed noise walls would impact three light poles installed on the existing wall starting approximately at station 543+80 to 547+40. Light poles, conduit, junction boxes would need to be replaced and the proposed circuit conductors will need to be tied into the next down station pole approximately at station 541+70. New light pole pilasters utilizing index 521-650 can be poured outside of the barrier when the junction slab for the noise wall is reconstructed

(9) Intelligent Transportation Systems (ITS)

The existing ITS facilities require field verification by the Department. To identify the impacts and costs of adding noise walls, two major assumptions were made and are detailed below:

- The nearest end-to-end (butt) splice is located at the Master HUB (south of NW 154th Street).To avoid proposing an additional butt splice within this project, the fiber backbone needs to be installed beyond the northern end of the noise wall installation to the Master HUB (south of NW 154th Street). The ITS as-built plans show the nearest butt splice at the Master HUB. The nearest potential butt splice may be located at Station 588+50 (via unofficial correspondence with the Contractor) which would save all the fiber migration work north of that point; however, this butt splice location needs to be field verified.
- The existing backbone conduits from NW 103rd Street up to the Master HUB are in good condition and could be reused. If this assumption is not the case, the cost estimate will significantly increase due to the need to propose new conduits for approximately 17,995 feet or 3.4 miles.

The proposed noise walls and foundation would impact the existing ITS at the following locations:

a) Noise Wall TOW-CD4
   - Remove existing conduit infrastructure (including conduits, fiber pull and splice boxes, and electrical pull boxes) and furnish & install new conduit infrastructure (including conduits, fiber pull and splice boxes and electrical pull-boxes)
     - Begin Approximately Station 498+20
     - End Approximately Station 515+50
   - Remove existing electrical service wire and furnish & install new electrical service wire
     - Begin Approximately Station 498+20
     - End Approximately Station 515+50
   - Remove existing ITS (devices and cabinets) on existing OHS structure and furnish & install ITS (devices and cabinets) on existing/new OHS structure
     - At Approximately Station 508+60
   - Remove existing ITS (devices and cabinets) on existing ITS pole and furnish & install ITS (devices and cabinets) on new ITS pole
     - At Approximately Station 505+20

b) Noise Wall E1-CD4
   - Remove existing conduit infrastructure (including conduits, fiber pull and splice boxes and electrical pull boxes) and furnish & install new conduit infrastructure (including conduits, fiber pull and splice boxes and electrical pull boxes)
     - Begin Approximately Station 537+50
     - End Approximately Station 568+00
   - Remove existing electrical service wire and furnish & install new electrical service wire
     - Begin Approximately Station 537+50
     - End Approximately Station 568+00
   - Furnish & install new fiber cables and perform backbone migration (including backbone and lateral cables, splices, and splice enclosures)
     - Begin Approximately Station 558+00
     - End Approximately Station 669+00
   - Remove existing ITS (devices and cabinets) on existing ITS pole and furnish & install ITS (devices and cabinets) on new ITS pole
     - At Approximately Station 542+00
     - At Approximately Station 543+00
     - At Approximately Station 557+00
   - Furnish & install ITS cabinet fiber infrastructure (Managed Field Ethernet Switches, fiber termination and fiber patch panels)
     - At Approximately Station 574+90
     - At Approximately Station 582+00
     - At Approximately Station 585+50
     - At Approximately Station 587+50
     - At Approximately Station 588+50
     - At Approximately Station 591+00
     - At Approximately Station 592+60
     - At Approximately Station 601+00
     - At Approximately Station 610+00

- At Approximately Station 616+00
- At Approximately Station 624+70
- At Approximately Station 626+00
- At Approximately Station 636+00
- At Approximately Station 645+50
- At Approximately Station 659+60

(10) Landscape

a) Noise Wall TOW-CD4

Construction of the proposed noise walls and foundations would impact the existing landscaped buffer in the space between the shoulder barrier for SR 826 northbound and the Frontage Road/W 20th Avenue. The existing landscaping includes Solitaire Palms, Key Thatch Palm, and Green Island Ficus shrubs recently installed by FPID 432687-4-52-01 in FY 2018. Construction of the noise walls would require relocation of the existing palms and replacement of the existing shrubs in the remaining green space. In addition, any soil disturbance areas would require re-sodding.

b) Noise Wall E1-CD4

Construction of the proposed noise walls and foundations would require landscaped buffer in the space between the shoulder barrier for SR 826 northbound and the Frontage Road/W 20th Avenue East. Construction of the noise walls would require removal and replacement of the existing shrubs along the wall. The existing mature canopy trees consist of Black Olives from sta. 549+00 to 554+00 (W 54th Street to W 56th Street) and provide an existing landscaped visual buffer between the Palmetto Expressway mainline and the residential condominiums on the east side of the Frontage Road. The existing trees could remain during noise wall construction, but would tree protection barriers per FDOT Standard Plans Index 110-100. In addition, any soil disturbance areas would require re-sodding.

Other Potential Impacts

(11) Outdoor Advertising (ODA) Billboard

Two ODA billboards are located along the east side of SR 826 within the vicinity of the proposed noise walls. The proposed noise walls may partially obstruct the view of these billboards at the northbound outside lanes.

- ODA Tag #CI016 & CI017 at section 87260000 MP 13.518, near W 54th Street
- ODA Tag #CM474 & CM473 at section 87260000 MP 13.891, near W 60th Street

(12) Business Signs

In addition to the two existing ODA billboards, there are numerous existing business signs along the Frontage Roads which are currently visible from the SR 826 northbound mainline. The proposed noise walls would partially or completely obstruct these existing signs from mainline traffic. These business signs are not included in the ODA database; however, the obstruction of these business signs potentially creates additional public controversy and delays for this design-build project.

- Noise Wall TOW-CD4
  - Florida National University, 4425 W 20 Ave.
  - Former Ramada property, 1950 W 49 St.
- Noise Wall E1-CD - Multiple business plazas from Little River Canal to north of W 54th Street:
  - Westland Shopping Plaza/Office Depot/A+ Mini Storage, 5301 W 20 Ave.
  - Westland Jardin, 5375 W 20 Ave.
  - Westland Jardin/Benjamin Moore/Eddy Supermarket, 5405 W 20 Ave.
  - El Conquistador Plaza, 1900 W 60 St.

(13) Consistency and Public Perception

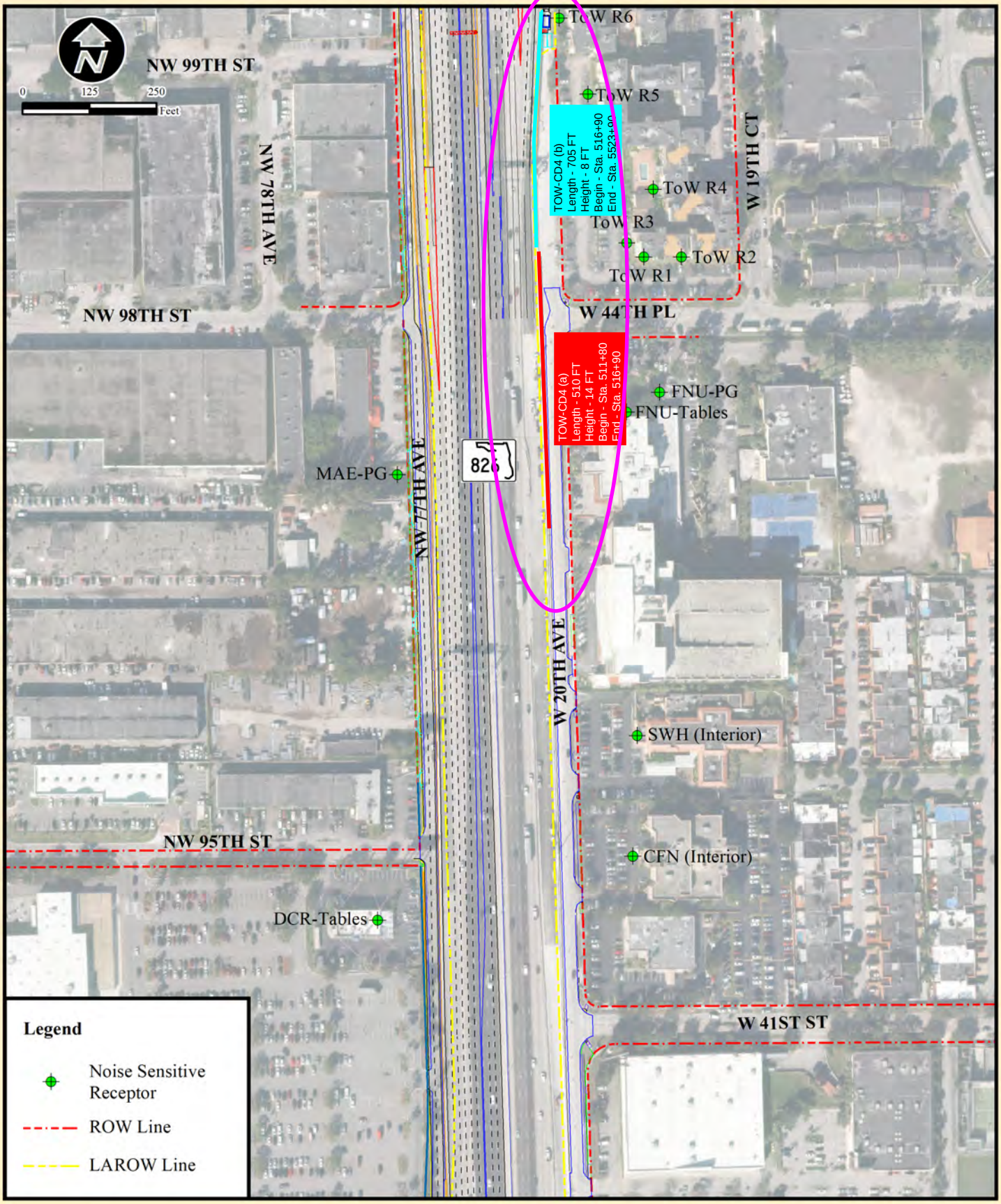
The proposed noise wall segments only include some of the residential areas adjacent within the project limits. Noise walls are not proposed along the segment along the east side from north of W 60th Street to W 64th Street. If the proposed noise walls only address some of the residential areas, there may be public complaints to provide more noise walls along the remaining neighborhoods without them, further increasing the cost, creating additional impacts and delay during the design/build phase.

Attachments

A. SEIR Noise Sensitive Receptors Map (Sheets 1 to 3)
B. Noise Wall Aerial Exhibits
C. Noise Wall Cost Estimate

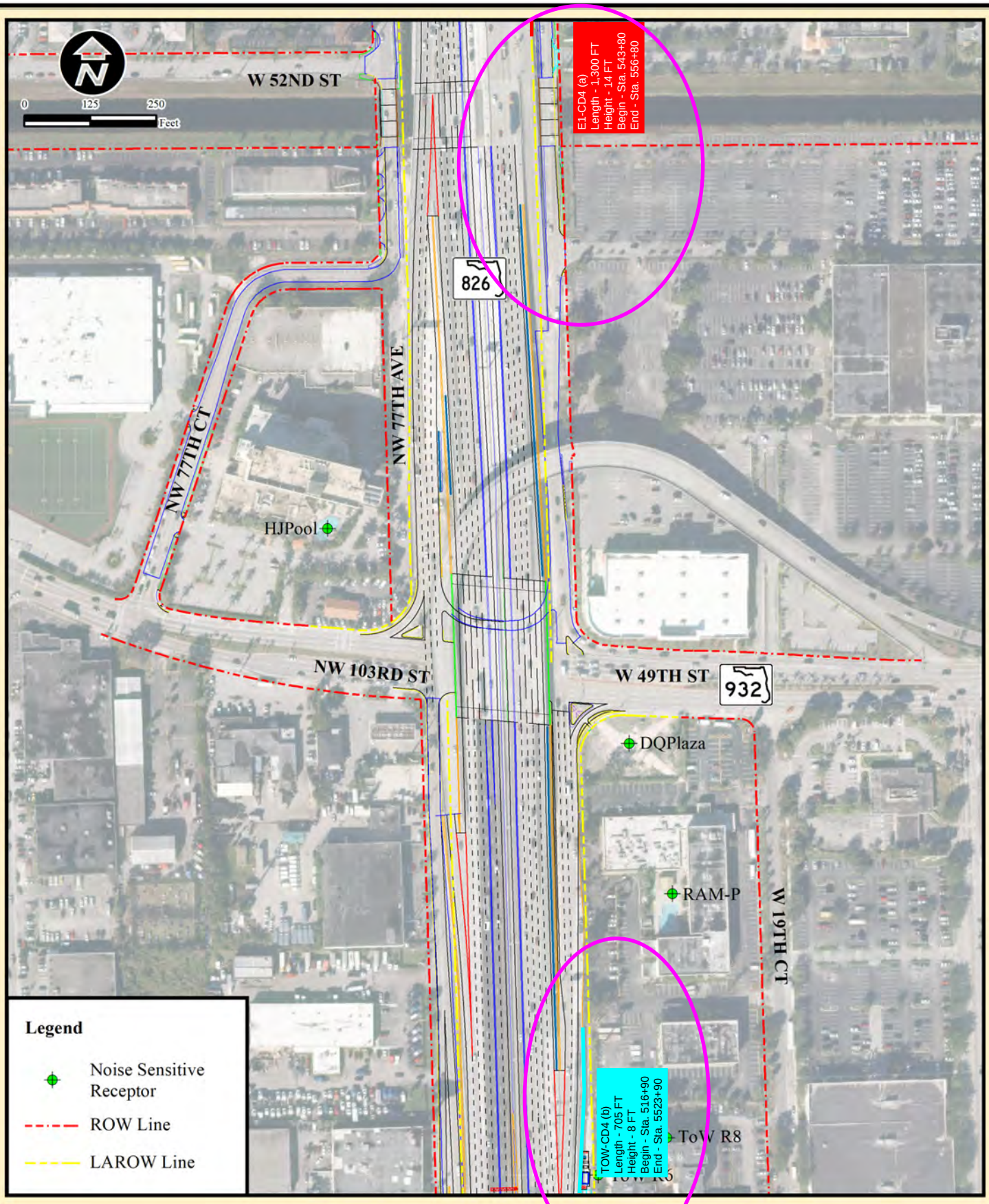
Attachment A

SEIR Noise Sensitive Receptors Map



Noise Sensitive Receptors Map
Sheet 1

SR 826 / Palmetto Expressway PD&E Study
from South of NW 25th Street (MP 8.355)
to North of NW 154th Street (MP 17.950)
Miami-Dade County, Florida
FM #447165-1-22-01, 441830-1-22-01, and 441831-1-22-01
ETDM #14455; Federal Aid Project Number N/A



Noise Sensitive Receptors Map
Sheet 2

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to North of NW 154th Street (MP 17.950)
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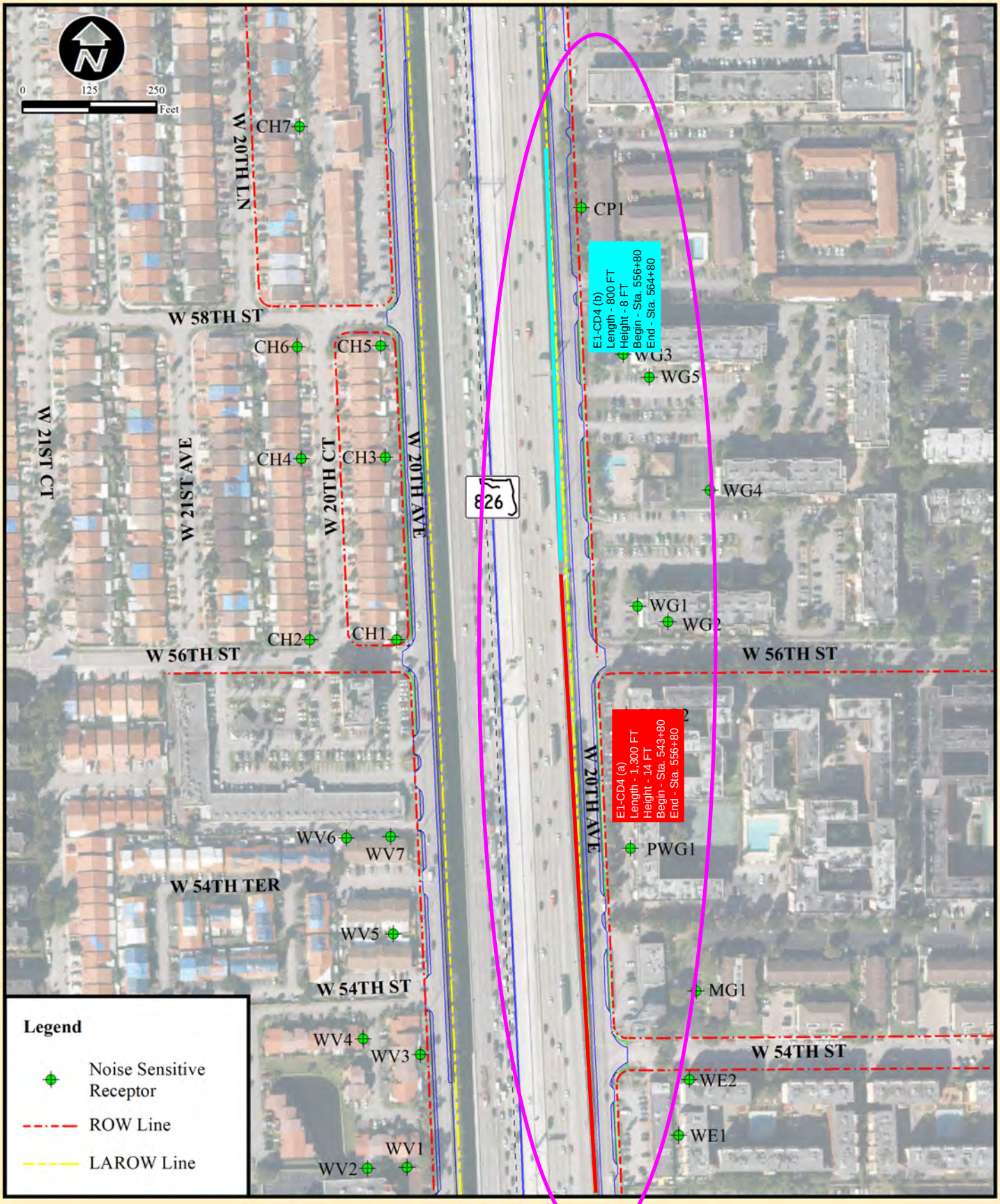

Noise Sensitive Receptors Map
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SR 826 / Palmetto Expressway PD&E Study
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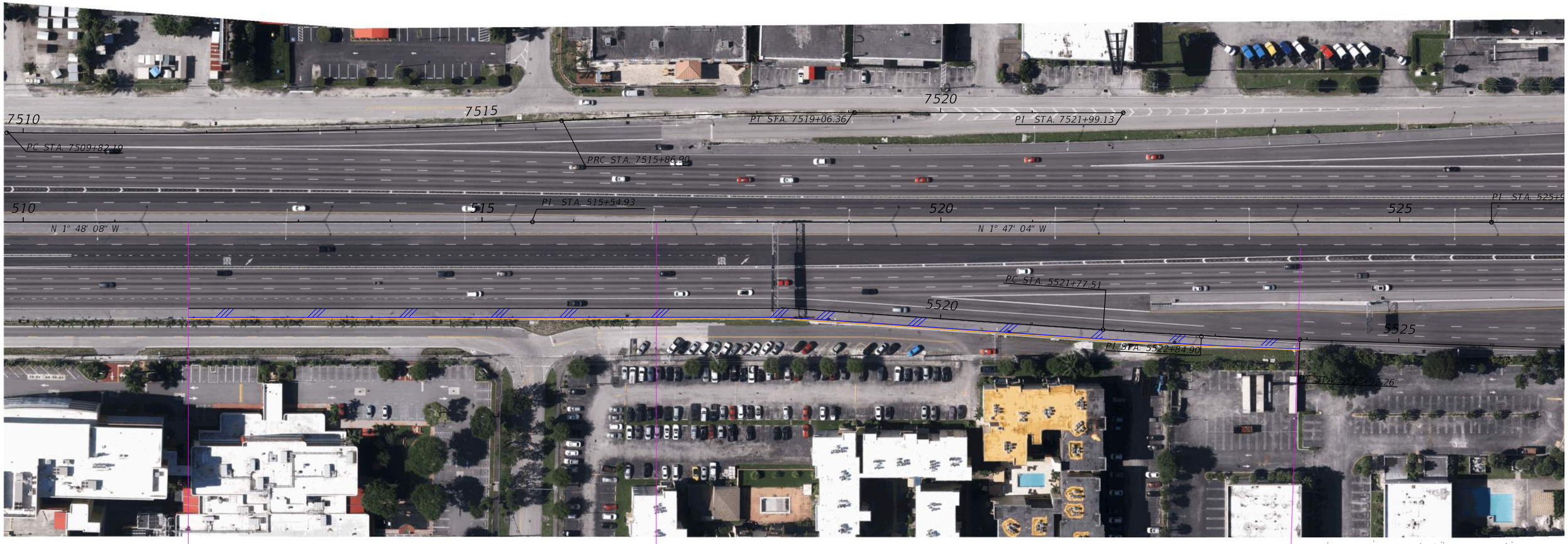
FM #447165-1-22-01, 441830-1-22-01, and 441831-1-22-01
ETDM #14455; Federal Aid Project Number N/A

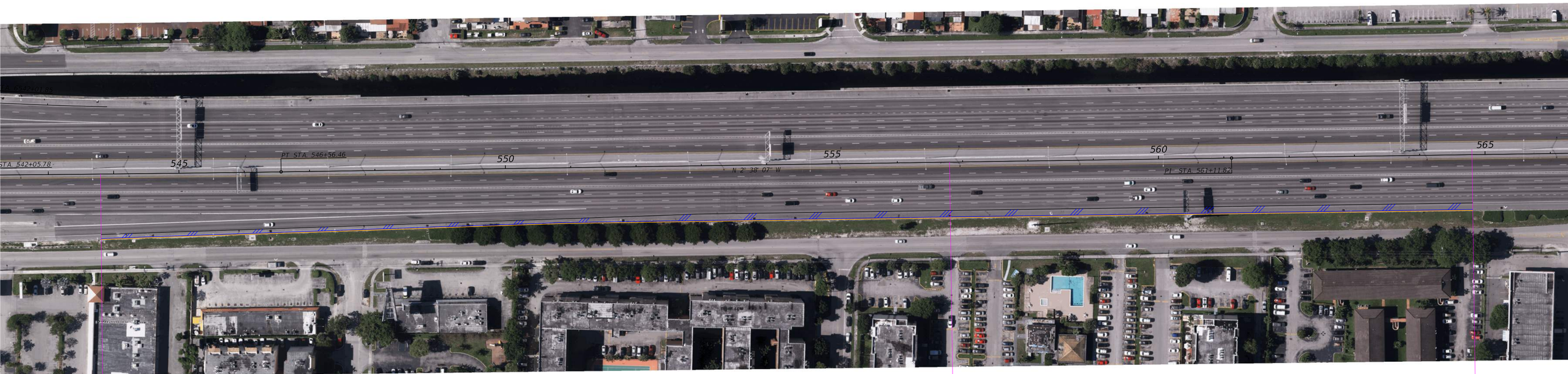
Attachment B

Noise Wall Aerial Exhibits



TOW-CD4(A)
LENGTH - 510 FT
HEIGHT - 14 FT
STA 511+80 STA 516+90

TOW-CD4(B)
LENGTH - 705 FT
HEIGHT - 8 FT
STA 516+90 TO STA 5523+90



E1-CD4(A)
LENGTH - 1,300 FT
HEIGHT - 14 FT
STA 543+80 TO STA 556+80

E1-CD4(B)
LENGTH - 800 FT
HEIGHT - 8 FT
STA 556+80 TO STA 564+80

Attachment C

Noise Wall Cost Estimate

Preliminary Construction Cost Estimate - Noise Wall TOW-CD4

Pay item	Description	Qty	Unit	Unit Price	Estimated Cost
101-1	MOBILIZATION	8%			$ 89,000
102-1	MAINTENANCE OF TRAFFIC	20%			$ 222,000
102-71-15	TEMPORARY BARRIER, F&I, ANCHORED	1,415	LF	$ 4.86	$ 7,000
102-89-1	TEMPORARY CRASH CUSHION, REDIRECTIVE OPTION	2	LO	$ 888.18	$ 2,000
110-1-1	CLEARING & GRUBBING	0.426	AC	$ 50,369.01	$ 22,000
110-4-10	REMOVAL OF EXISTING CONCRETE	270	SY	$ 15.58	$ 5,000
120-1	REGULAR EXCAVATION	315	CY	$ 13.30	$ 5,000
160-4	TYPE B STABILIZATION	1,344	SY	$ 4.79	$ 7,000
285-706	OPTIONAL BASE, BASE GROUP 06	1,344	SY	$ 48.96	$ 66,000
334-1-14	SUPERPAVE ASPHALTIC CONC, TRAFFIC D	110.9	TN	$ 119.16	$ 14,000
425-1-541	INLETS, DT BOT, TYPE D, <10'	1	EA	$ 4,200.00	$ 5,000
425-1-883	INLETS, BARRIER WALL, RIGID, CURB & GUTTER, J BOT<10'	2	EA	$ 2,690.00	$ 6,000
425-1-921	INLETS, ADJACENT BARRIER, <=10'	3	EA	$ 5,028.32	$ 16,000
425-1-923	INLETS, ADJACENT BARRIER, J BOTTOM, < 10'	1	EA	$ 7,405.00	$ 8,000
425-2-41	MANHOLES, P-7, <10'	1	EA	$ 4,814.47	$ 5,000
425-2-72	MANHOLES, J-7, >10'	3	EA	$ 7,059.83	$ 22,000
430-174-118	PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 18"SD	28	LF	$ 71.38	$ 2,000
430-174-124	PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 24"SD	100	LF	$ 83.97	$ 9,000
443-70-4	FRENCH DRAIN, 24"	112	LF	$ 150.64	$ 17,000
521-72-27	SHOULDER CONCRETE BARRIER WALL, 14' NOISE WALL	510	LF	$ 434.00	$ 222,000
521-72-24	SHOULDER CONCRETE BARRIER WALL, 8' NOISE WALL	533	LF	$ 359.24	$ 192,000
521-8-11	CONCRETE BARRIER, WITH JUNCTION SLAB, 8'-0" NOISE WALL	172	LF	$ 380.00	$ 66,000
570-1-2	PERFORMANCE TURF, SOD	500	SY	$ 3.83	$ 2,000
580-1-1	LANDSCAPE COMPLETE- SMALL PLANTS	1	LS	$ 16,750.00	$ 17,000
580-1-2	LANDSCAPE COMPLETE- LARGE PLANTS	1	LS	$ 5,500.00	$ 6,000
581-1-2	RELOCATE TREES AND PALMS, PALM, >=14' OF CLEAR TRUNK	22	EA	$ 1,301.00	$ 29,000
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	1,715	LF	$ 25.00	$ 43,000
630-2-14	CONDUIT, FURNISH & INSTALL, ABOVEGROUND	105	LF	$ 43.33	$ 5,000
630-2-14	CONDUIT, FURNISH & INSTALL, ABOVEGROUND	193	LF	$ 24.34	$ 5,000
630-2-16	CONDUIT, FURNISH & INSTALL, EMBEDDED CONCRETE BARRIERS AND TRAFFIC RAILINGS	1,497	LF	$ 9.59	$ 15,000
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	4	EA	$ 39.50	$ 1,000
633-2-32	FIBER OPTIC CONNECTION, INSTALL, TERMINATION	12	EA	$ 79.77	$ 1,000
633-3-11	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE ENCLOSURE	1	EA	$ 887.72	$ 1,000
633-3-15	FIBER OPTIC CONNECTION HARDWARE, F&I, PRETERMINATED PATCH PANEL	1	EA	$ 1,746.74	$ 2,000
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	8	EA	$ 677.62	$ 6,000
635-2-12	PULL & SPLICE BOX, F&I, 24" X 36" COVER SIZE	3	EA	$ 1,354.19	$ 5,000
635-2-13	PULL & SPLICE BOX, F&I, 30" X 60" RECTANGULAR OR 36" ROUND COVER SIZE	1	EA	$ 450.00	$ 1,000
635-3-12	JUNCTION BOX, FURNISH & INSTALL, MOUNTED	2	EA	$ 450.00	$ 1,000
635-3-13	JUNCTION BOX, FURNISH & INSTALL, EMBEDDED	4	EA	$ 317.40	$ 2,000
639-2-1	ELECTRICAL SERVICE WIRE, FURNISH & INSTALL	1,795	LF	$ 4.51	$ 9,000
639-3-11	ELECTRICAL SERVICE DISCONNECT, F&I, POLE MOUNT	2	EA	$ 3,420.00	$ 7,000
639-6-1	ELECTRICAL POWER SERVICE- TRANSFORMER FURNISH & INSTALL	2	EA	$ 1,695.76	$ 4,000
641-3-175	CONCRETE CCTV POLE, FURNISH & INSTALL WITH LOWERING DEVICE, 75'	1	EA	$ 24,103.79	$ 25,000
641-3-800	CONCRETE CCTV POLE, COMPLETE POLE REMOVAL	1	EA	$ 4,800.00	$ 5,000
660-3-12	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	4	EA	$ 8,241.82	$ 33,000
660-3-60	VEHICLE DETECTION SYSTEM - MICROWAVE, REMOVE, COMPLETE SYSTEM	4	EA	$ 332.73	$ 2,000
676-2-122	ITS CABINET, FURNISH & INSTALL, POLE MOUNT WITH SUNSHIELD, 336S, 24" W X 46" H X 22" D	1	EA	$ 5,632.75	$ 6,000
676-2-143	ITS CABINET, FURNISH & INSTALL, BASE MOUNT, 334, 24" W X 66" H X 30" D	1	EA	$ 6,404.72	$ 7,000
676-2-600	ITS CABINET- REMOVE	2	EA	$ 654.40	$ 2,000
682-1-133	ITS CCTV CAMERA, F&I, DOME ENCLOSURE - NON-PRESSURIZED, IP, HIGH DEFINITION	2	EA	$ 5,006.45	$ 11,000
682-1-600	ITS CCTV CAMERA,, REMOVE & DISPOSAL	2	EA	$ 305.00	$ 1,000
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	2	EA	$ 4,383.30	$ 9,000
684-5-1	MEDIA CONVERTER, FURNISH & INSTALL	1	EA	$ 727.13	$ 1,000
685-1-11	UNINTERRUPTIBLE POWER SUPPLY, FURNISH AND INSTALL, LINE INTERACTIVE	1	EA	$ 4,178.42	$ 5,000
700-1-22	SINGLE POST SIGN, F&I BARRIER MOUNT INDEX 11871/700-013, 12-20 SF	1	AS	$ 1,867.85	$ 2,000
700-3-206	SIGN PANEL, FURNISH & INSTALL OVERHEAD MOUNT, 101-200 SF	1	EA	$ 5,178.94	$ 6,000
700-3-207	SIGN PANEL, FURNISH & INSTALL OVERHEAD MOUNT, 201-300 SF	1	EA	$ 7,838.97	$ 8,000
700-4-114	OVERHEAD STATIC SIGN STRUCTURE, FURNISH & INSTALL, CANTILEVER, 41-50 FT	1	EA	$ 95,408.82	$ 96,000
715-1-12	LIGHTING CONDUCTORS, F&I, INSULATED, NO.8 - 6	2,268	LF	$ 1.69	$ 4,000
715-4-12	LIGHT POLE COMPLETE, FURNISH & INSTALL STANDARD POLE STANDARD FOUNDATION, 35' MOUNTIN	4	EA	$ 4,955.15	$ 20,000
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE, FOUNDATION REMAINS	4	EA	$ 700.00	$ 3,000
715-500-3	POLE CABLE DISTRIBUTION SYSTEM, WALL MOUNT	5	EA	$ 349.73	$ 2,000
			Sub-Total		**$ 1,419,000**

Preliminary Construction Cost Estimate - Noise Wall E1-CD4

Pay item	Description	Qty	Unit	Unit Price	Estimated Cost
101-1	MOBILIZATION	8%			$ 140,000
102-1	MAINTENANCE OF TRAFFIC	20%			$ 349,000
160-4	TYPE B STABILIZATION	1,972	SY	$ 4.79	$ 10,000
521-8-11	CONCRETE BARRIER, WITH JUNCTION SLAB, 8'-0" NOISE WALL	951	LF	$ 380.00	$ 362,000
521-72-27	SHOULDER CONCRETE BARRIER WALL, 14' NOISE WALL	1,149	LF	$ 434.00	$ 499,000
334-1-14	SUPERPAVE ASPHALTIC CONC, TRAFFIC D	162.7	TN	$ 119.16	$ 20,000
285-706	OPTIONAL BASE, BASE GROUP 06	1,972	SY	$ 48.96	$ 97,000
102-71-15	TEMPORARY BARRIER, F&I, ANCHORED	1,349	LF	$ 4.86	$ 7,000
102-89-1	TEMPORARY CRASH CUSHION, REDIRECTIVE OPTION	2	LO	$ 888.18	$ 2,000
110-1-1	CLEARING & GRUBBING	0.664	AC	$ 50,369.01	$ 34,000
110-4-10	REMOVAL OF EXISTING CONCRETE	467	SY	$ 15.58	$ 8,000
120-1	REGULAR EXCAVATION	544	CY	$ 13.30	$ 8,000
430-174-118	PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 18"SD	236	LF	$ 71.38	$ 17,000
430-174-124	PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 24"SD	35	LF	$ 83.97	$ 3,000
425-1-921	INLETS, ADJACENT BARRIER, <=10'	5	EA	$ 5,028.32	$ 26,000
425-1-923	INLETS, ADJACENT BARRIER, J BOTTOM, < 10'	8	EA	$ 7,405.00	$ 60,000
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	400	LF	$ 19.39	$ 8,000
635-2-12	PULL & SPLICE BOX, F&I, 24" X 36" COVER SIZE	4	EA	$ 1,210.00	$ 5,000
695-1-1	TRAFFIC MONITORING SITE VEHICLE SENSOR-NON-WEIGHT, FURNISH & INSTALL	7	EA	$ 1,416.09	$ 10,000
695-6-12	TRAFFIC MONITORING SITE INDUCTIVE LOOP ASSEMBLY, FURNISH & INSTALL, 2 LOOPS	7	EA	$ 1,308.43	$ 10,000
695-7-132	TRAFFIC MONITORING SITE CABINET, FURNISH & INSTALL, TYPE 3, PEDESTAL MOUNT	4	EA	$ 5,258.80	$ 22,000
630-2-14	CONDUIT, FURNISH & INSTALL, ABOVEGROUND	191	LF	$ 24.34	$ 5,000
630-2-16	CONDUIT, FURNISH & INSTALL, EMBEDDED CONCRETE BARRIERS AND TRAFFIC RAILINGS	1,146	LF	$ 9.59	$ 11,000
635-3-12	JUNCTION BOX, FURNISH & INSTALL, MOUNTED	2	EA	$ 450.00	$ 1,000
635-3-13	JUNCTION BOX, FURNISH & INSTALL, EMBEDDED	3	EA	$ 317.40	$ 1,000
715-1-13	LIGHTING CONDUCTORS, F&I, INSULATED, NO 4 TO NO 2	1,863	LF	$ 2.29	$ 5,000
715-4-12	LIGHT POLE COMPLETE, FURNISH & INSTALL STANDARD POLE STANDARD FOUNDATION, 35' MOUNTIN	3	EA	$ 4,955.15	$ 15,000
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE, FOUNDATION REMAINS	3	EA	$ 700.00	$ 3,000
715-500-3	POLE CABLE DISTRIBUTION SYSTEM, WALL MOUNT	4	EA	$ 349.73	$ 2,000
630-2-11	CONDUIT, FURNISH & INSTALL, OPEN TRENCH	430	LF	$ 9.07	$ 4,000
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	2,740	LF	$ 25.00	$ 69,000
630-2-15	CONDUIT, FURNISH & INSTALL, BRIDGE MOUNT	125	LF	$ 28.94	$ 4,000
633-1-121	FIBER OPTIC CABLE, F&I, UNDERGROUND,2-12 FIBERS	3,145	LF	$ 2.55	$ 9,000
633-1-122	FIBER OPTIC CABLE, F&I, UNDERGROUND,13-48 FIBERS	540	LF	$ 2.46	$ 2,000
633-1-124	FIBER OPTIC CABLE, F&I, UNDERGROUND, 97 - 144 FIBERS	14,310	LF	$ 3.39	$ 49,000
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	100	EA	$ 39.50	$ 4,000
633-2-32	FIBER OPTIC CONNECTION, INSTALL, TERMINATION	432	EA	$ 79.77	$ 35,000
633-3-11	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE ENCLOSURE	21	EA	$ 887.72	$ 19,000
633-3-15	FIBER OPTIC CONNECTION HARDWARE, F&I, PRETERMINATED PATCH PANEL	22	EA	$ 1,746.74	$ 39,000
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	14	EA	$ 677.62	$ 10,000
635-2-12	PULL & SPLICE BOX, F&I, 24" X 36" COVER SIZE	4	EA	$ 1,354.19	$ 6,000
635-2-13	PULL & SPLICE BOX, F&I, 30" X 60" RECTANGULAR OR 36" ROUND COVER SIZE	3	EA	$ 450.00	$ 2,000
639-2-1	ELECTRICAL SERVICE WIRE, FURNISH & INSTALL	3,435	LF	$ 4.51	$ 16,000
639-3-11	ELECTRICAL SERVICE DISCONNECT, F&I, POLE MOUNT	3	EA	$ 3,420.00	$ 11,000
639-6-1	ELECTRICAL POWER SERVICE- TRANSFORMER FURNISH & INSTALL	3	EA	$ 1,695.76	$ 6,000
641-2-13	PRESTRESSED CONCRETE POLE, F&I, TYPE P-III	1	EA	$ 12,290.41	$ 13,000
641-2-80	PRESTRESSED CONCRETE POLE, COMPLETE POLE REMOVAL- POLE 30' AND GREATER	1	EA	$ 4,554.39	$ 5,000
641-3-175	CONCRETE CCTV POLE, FURNISH & INSTALL WITH LOWERING DEVICE, 75'	1	EA	$ 24,103.79	$ 25,000
641-3-800	CONCRETE CCTV POLE, COMPLETE POLE REMOVAL	1	EA	$ 4,800.00	$ 5,000
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	1	EA	$ 1,161.67	$ 2,000
646-1-60	ALUMINUM SIGNALS POLE, REMOVE	1	EA	$ 156.82	$ 1,000
650-1-13	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 2 SECTION, 1-2 WAYS	1	AS	$ 790.00	$ 1,000
660-3-12	VEHICLE DETECTION SYSTEM- MICROWAVE, FURNISH & INSTALL, ABOVE GROUND EQUIPMENT	5	EA	$ 8,241.82	$ 42,000
660-3-60	VEHICLE DETECTION SYSTEM - MICROWAVE, REMOVE, COMPLETE SYSTEM	5	EA	$ 332.73	$ 2,000
670-5-140	TRAFFIC CONTROLLER ASSEMBLY, FURNISH & INSTALL MODEL 2070	1	AS	$ 26,550.00	$ 27,000
670-5-600	TRAFFIC CONTROLLER ASSEMBLY, REMOVE CONTROLLER WITH CABINET	1	AS	$ 813.00	$ 1,000
676-2-122	ITS CABINET, FURNISH & INSTALL, POLE MOUNT WITH SUNSHIELD, 336S, 24" W X 46" H X 22" D	3	EA	$ 5,632.75	$ 17,000
676-2-600	ITS CABINET- REMOVE	3	EA	$ 654.40	$ 2,000
682-1-133	ITS CCTV CAMERA, F&I, DOME ENCLOSURE - NON-PRESSURIZED, IP, HIGH DEFINITION	1	EA	$ 5,006.45	$ 6,000
682-1-600	ITS CCTV CAMERA,, REMOVE & DISPOSAL	1	EA	$ 305.00	$ 1,000
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	7	EA	$ 4,383.30	$ 31,000
684-5-1	MEDIA CONVERTER, FURNISH & INSTALL	3	EA	$ 727.13	$ 3,000
685-1-11	UNINTERRUPTIBLE POWER SUPPLY, FURNISH AND INSTALL, LINE INTERACTIVE	3	EA	$ 4,178.42	$ 13,000
570-1-2	PERFORMANCE TURF, SOD	2,400	SY	$ 3.83	$ 10,000
			Sub-Total		**$ 2,232,000**

Total	**$ 3,651,000**